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the north carolina school of science and mathematics

Office of the Director

DIRECTOR'S REPORT TO THE BOARD OF TRUSTEES

June 10, 1983

I am honored to present this report of progress and plans of the North Carolina School of Science and Mathematics at the conclusion of the third year of operation of the School, and my fourth year as Director.

Each year in the life of the School has brought its share of first time experiences unusual events and important achievements. This year has been no exceptions Together, it and the year ahead represent a watershed in the evolution of the School. The flow of events for the past four years has been in the direction of starting basic programs, preparing facilities, developing policies and procedures, bringing in staff and students, establishing our role within the state educational community. Each year brought new challenges, many of which tested our ability to provide the basic needs of a growing population. (Last summer, for example, there was a period where we were uncertain as to where we would feed the students and where to house 80 of them.)

Now the flow of our activities can be in a different direction. During the coming year there will be no new construction, no increase in the size of the student body or staff, no uncertainty about availability of space for living and learning. We can channel our planning toward filling greater reservoirs of service and effectiveness.

As in past reports I have counted on the administrators responsible for various divisions of the School to provide detailed reports of the progress and plans for their areas of responsibility. They in turn receive reports from their department heads.

The body of this report consists of the materials thus accumulated and in its entirety provides you with a cross section of issues and events. Some are as important as the strong reminders of the urgent need for a gymnasium, others as seemingly minor as the recovery of a two dollar wallet by the security staff.

During the meeting Mr. Mace, Mr. Collins, Ms. Hamilton, and Dr. Jackson will highlight their reports briefly and will answer any questions which you might have.

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In preparing their reports each administrator works independently as is evident from the variety of format and material assembled and presented. However, each has addressed in more detail than previously the future of the School in some important areas.

Mike Collins, in addition to his comprehensive list of "Anticipated Needs/Plans" had earlier presented to me recommendations for various steps designed to assure that "...there must continue to be a respect for learning and intellectual pursuits at NCSSM. That does not mean that our young people will not grow socially and personally as well. An atmosphere that encourages a focus on the prime reasons for the establishment of NCSSM will provide the other aspects of growth as well if we continue to stress responsible life styles that reflect standards of academic performance and respect for the rights of all. The School should not be designed to cater to students. It is established to permit healthy development in an orderly, well thought out atmosphere. NCSSM is on the track and has momentum. It is time for some adjustments to ensure that the tremendous gains are preserved."

Sarah Hamilton has included two recommendations designed to provide the flexibility of faculty expertise and assignment essential to making the most of the potential for quality learning experiences.

Cynthia Jackson reports on her steps to provide essential evaluation and research programs, and on the continuing growth of the outreach program.

Borden Mace, in a wide ranging set of recommendations and two thoughtful essays, challenges us to even greater efforts to create a "Community of Scholars and Achievers" in an environment of "Individual Curosity...."

All of these have evolved out of many discussions on campus and show that we have at last reached the point where we can spend more time on ideas and people than on buildings and procedures.

The time to be spent, the discussions to be held, must be sustained and serious. The issues raised are not without differing points of view, as shown in these various reports, and must be seen in the reality of what is possible.

During the Board Meeting I will plan the use of the time available for the Director's Report to make a presentation covering these areas:

1. THE NEED FOR EVALUATION AND RESEARCH. How important it is to take stock of what we are doing and to share our experiences through design and analysis of carefully done studies.

2. PROGRAM DEVELOPMENT. What is taught here, for what purposes, by whom, and with what resources needs to be addressed. Two faculty/staff task groups have been formed to look at the learning process and the teaching process as they pertain to the School.

3. THE LIVING/LEARNING CONCEPT EXPANDED. How to continue our initial efforts to create a community of scholars and achievers

given that "(the early visionaries)...had the idealism to guide their dream; we are faced with the reality of 400 gifted teenagers and their emotional and intellectual needs."*

4. THE DEFINITION OF "THE TEACHER" EXPANDED. The appropriate qualifications, roles, and support for teachers and other professional staff.

5. THE OUTREACH CAPABILITIES EXPANDED. The almost unlimited potential for this school to expand its outreach capabilities to meet certain needs in science and mathematics education which seem to be addressed only in limited ways by other institutions.

6. PUTTING THE NATIONAL IMPACT IN PERSPECTIVE. The School is being seen as a model. How good a model is it? What are we modeling? Are carbon copies what the nation needs?

My purpose will be to engage all of the constituents of the School in the discussion of these topics, in the months ahead. The Board of Trustees is one of the most essential of these constituents, so it is important to the future of the School that you participate, individually, and collectively in these discussions.

Finally, by suggesting that discussions of the future of the School are necessary, as are also the changes which will result, I am not diminishing the pride I have in what has been accomplished up to this point. To be able to look critically at what has been accomplished as the means to set future goals only confirms that as the stream of events in the life of the School widens and deepens, we are confident we will be able to stay on a course of service to the state and the nation.

Charles R. Eilber

Charles R. Eilber
Director

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* "A Community of Scholars and Achievers", F. Borden Mace, Page 1.

given that "(the early visionaries)...had the luxuries to dream their dreams, we are faced with the reality of the gifts, endowments and their ecological and intellectual needs."*

4. THE DEFINITION OF "THE [illegible] [illegible]". [illegible] functions, roles, [illegible] staff.

5. THE [illegible] RELATIONSHIP [illegible]. The [illegible] [illegible] school [illegible] [illegible] [illegible] [illegible] only [illegible] [illegible] [illegible].

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* "A Community of Scholars and Scientists", F. [illegible] Wood, Page [illegible]

Academics

Sarah W. Hamilton
Dean for Academic Affairs

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THE NORTH CAROLINA SCHOOL OF SCIENCE AND MATHEMATICS

May 31, 1983

TO: Charles R. Eilber, Director

FROM: Sarah Hamilton, Dean of Academic Affairs

SUBJECT: Report and Recommendations to Board of Trustees

1. RECENT AND CURRENT ACTIVITIES

1.1 Physical Facilities

The recently completed renovations and on-going construction activities are part of our continuing efforts to provide a physical facility that will enhance and promote the instructional program. To ensure this, the physical facilities here as well as the curriculum must be built around the needs, interests, and abilities of our gifted and talented student body.

1.2 Science Department - Chemistry - Construction of this complex on second floor of Bryan Center is now complete. The move to the Chemistry floor was completed in mid-March. The three classrooms on each of the lab floors (Biology complex on third and Chemistry on second) have allowed for extra space for expansion of the science program and consolidation and proper storage of materials and equipment. Additional space provides more opportunities for individual and small group laboratory work. Funding for one of the Chemistry laboratories was provided by the Burroughs Wellcome Company. Classroom spaces, designed for a maximum of 18 students are currently equipped to accommodate and often provide classroom instruction for up to 24 students. Staffing plans for reductions in student-teacher ratio next fall will help to alleviate restrictions on classroom mobility and easy accessibility to materials and equipment in some science classrooms.

1.3 Foreign Languages - Classroom space on ground floor of Hill House formerly occupied by Biology classes (1980-82) and Chemistry classes (1982-83) currently serves as a teaching area and temporary quarters for housing the Language Laboratory. Significantly, it should be noted that the opportunity to relocate science classes in the new science facilities provided the first opportunity to begin initiating efforts to seriously address the physical needs of the Foreign Language Department.

1.4 Library - Plans for moving into the new facility are scheduled for the summer. Construction of this spacious facility on first floor Bryan Center - North Wing is expected to be completed in late June. Plans for securing temporary help for moving and relocating books, furniture, materials and fixtures, and installing a magnetic security system have been finalized.

1.5 Office Space - Single office space for student/parent conferences, counseling, tutorials, faculty study, and research is currently available for 98% of the full-time teaching faculty. Two or three part-time instructors are using shared office space. The Clerk/Typist Teacher Aide's Office will be temporarily housed in the Library's Periodical Storage Room. The computer terminal and printer for Academic Office use will also be housed in a sectioned area in these same quarters.

1.6 Computing Facilities - Definitive steps were taken this spring to develop and begin implementing a long-range program for significantly upgrading computer facilities for student use and providing a distributive system for meeting the needs of the administrative staff. (See Appendix A)

1.7 Faculty

The degree and quality of professional interactions of faculty with and involvement in every level of the professional community is indeed significant. Their scholarly and continuous pursuit of new knowledge and new dimensions in their respective disciplines, their commitment to excellence in teaching, and their willingness to enthusiastically accept new challenges attests to the fact that this assemblage of educators can indeed sustain and continue to foster NCSSM's current status as the "nation's model" for providing a new direction in the education of the nation's gifted and talented youth.

A detailed listing of the professional activities of faculty and the different departments is found in Appendix B. These include presentations at local, state, regional and national conferences, conventions, inservice workshops, and seminars. NCSSM has provided faculty representatives for Southern Association Accreditation Teams, Statewide Curriculum Projects, State and National Task Forces and Consortia, Review and College Boards Advisory Committees, and the International Computer Conference.

Recent state and national publication lists faculty members as contributing editors, translators, authors, and book illustrators.

Professional growth activities of some faculty are often augmented by support from the Professional Development Grant Program. Funds from this grant will provide professional enrichment programs for seven faculty members this summer for (1) traveling to Science Centers and Museums; (2) completion of a textbook on Biophysics; (3) developing an Information Retrieval System for use with NCSSM students; (4) Study at Oxford and in Italy; (5) faculty participation in the Seminars for American and Canadian German Teachers in Schwabisch-Hall, Federal Republic of Germany; (6) attendance at the Annual Conference on the Role of Women in Education; and (7) partial support for relocating faculty participants in the Teacher Exchange Program.

Staffing - The teaching faculty for the 1982-83 term numbers forty-five and includes: twenty-six full-time, ten part-time, and four visiting Babcock instructors and a Media Staff of four. Additionally, seventeen long-term or temporary support personnel provided the following professional services for the academic program this year: part-time Laboratory Technician (1), Library Aides (2), Dance, Drama, Martial Arts and Photography Instructors (4), Study Proctors (5), Tutors (3), Coordinators (1), and Interns (1).

Projected staffing needs, based on prior enrollment study, have resulted in combining of the two-part time instructors' positions in Chemistry, upgrading the part-time position in Biology to full-time status and providing for Ross Baker, Coordinator of Mentor Program, to resume full-time teaching responsibilities in Biology. These changes will provide the continuity needed for planning and developing instructional programs in Chemistry and biology uniquely designed to better meet the needs, abilities, and interests of students enrolled in courses in these two disciplines.

Definitive plans for staffing or supplementing the current faculty for the 1983-84 school term will be completed after registration results from the incoming junior class are received in June.

1.8 FACULTY EVALUATION

The North Carolina School of Science and Mathematics' teacher evaluation process, a formal document prepared for the purpose of providing a systematic procedure for reviewing and assessing teacher performance, is completed. During a thirteen month period, a Steering Committee, comprising Department Heads and the Academic Dean, solicited opinions on methods of evaluation from faculty and professional staff of the School, all of whom shared in decision-making.

The evaluation process represents the results of that effort and is an attempt to assist the faculty and administration to continue to work together to ensure a quality educational program of excellence.

This is being reviewed by the Department of Administration Personnel Office for possible discrepancies or conflicts with State Law. After any necessary revisions it will be brought to the Personnel Committee of the Board of Trustees for appropriate review and Board action.

1.9 BABCOCK INSTRUCTORS

The Babcock Visiting Instructor's Program has exceeded all expectations for serving as a vehicle of shared experiences and expertise between other secondary public school teachers of science and mathematics and the faculty here at the School. The four Babcock instructors participating in the program this year have contributed in many significant and critical ways to curriculum development programs and the professional development of the science and mathematics staff. The program provided excellent additions to our teaching staff and the instructors have benefitted by using available facilities and resources here for developing and preparing materials to carry with them to their home schools. The experience has been rewarding and gratifying for the Babcock instructors and has provided a mechanism for allowing the faculty here to keep in touch with the educational perspective of the "real world".

Three additional Babcock instructors will join the teaching faculty next fall. The two mathematics instructors will provide additional opportunities for the department to continue the study improvement of its course offerings and quality of instruction. The current Biology Babcock instructor will be replaced by another instructor in this discipline.

The first Teacher Exchange Program between Exeter and the School will begin in the fall. Dorothy Doyle, member of the mathematics faculty, will share her teaching expertise and computer experiences with mathematics teachers at Exeter. Dick Brown, nationally known consultant, lecturer, and author of mathematics texts, will bring and share experiences with the entire faculty. Opportunities for learning and sharing strategies for computer use in classroom instruction provided the impetus for this exchange.

2.0 INSTRUCTIONAL PROGRAMS

CURRICULUM

The third year of operation of the School is often cited as significant. With the arrival of 252 incoming juniors last fall, the School enrolled its largest class to date. Even more significant, however, is the fact that this year also marked the end of the first two-year cycle and the beginning of the second one.

This third year has served as an excellent vantage point for reviewing and assessing the total institutional program offered here. During the year, faculty, individually and in small groups and committees, through department meetings, internal and external professional activities, developed a more comprehensive understanding of the variety of learning styles and preferences of students enrolled here. With this understanding, many goals and objectives of the learning experience provided here were redefined. Many basic modifications are underway in the curriculum as we seek to make it more adaptable to our students' varying levels and individual learning styles and preferences. The 1983-84 Course Catalog is available for a more complete description of the curriculum.

SCIENCE DEPARTMENT

The science faculty has devoted much time and energy to studying, evaluating, and restructing course offerings to provide for the great diversity in scientific backgrounds. New courses will be offered next fall in Physics, Chemistry, and Biology.

The Biology faculty will offer a modular quarter based system which will be tailored to the knowledge level and interest of each individual student. A placement test, designed by the faculty, has been given to each student who registered for Biology next year. The results of these tests will be used to allow each student to select modules which are suitable for his/her level of interest and ability.

These efforts of the Biology faculty are monumental and represent 30 different course selections for providing individualized instruction tuned to student achievement and interest.

The Chemistry faculty has reinstituted and formalized an introductory Chemistry course designed to provide a manageable beginning Chemistry curriculum for those students with less well developed backgrounds in abstract reasoning skills. This has often resulted in difficulty in mastering the more rigorous introductory Chemistry courses. Six different courses in beginning and advanced Chemistry are included in the curriculum offerings for 1983-84.

The Physics faculty has added an introductory course which will fill the gap between the Physics Survey course and the Calculus-based Physics course. Beginning in the fall of 1984, the the Calculus-based Physics course will be offered only as a second year advanced Physics course. A more formalized picture of Physics will be introduced along with the broad range of topics currently covered in the course. Seven courses in Physics are available for students during the 1983-84 school term.

MATHEMATICS DEPARTMENT

Introduction of the LOGO course has proven very successful. All formal instruction in the 1983-84 school year will be in LOGO and Pascal.

The creation of Algebra 3, Algebra 3 with Precalculus, and Introduction to College Mathematics has enabled the department to better serve the needs of all students. The current range of course offerings (16) represents a response to the needs of the students within the context of a challenging graduation requirement and program.

The syllabus prepared for the Precalculus course (December 1982 Board Report) has proven successful. While the syllabus is only partially completed, the coordination among the various sections of this most important course has been a significant accomplishment.

The Topics in Discrete Mathematics course has been quite successful in attracting a larger than anticipated number of rising seniors. This course offers a unique experience in high school mathematics for our students.

The Mathematics Department designed and administered the Qualifying Test in Mathematics to students at the School and others from shools seeking to qualify for competition at the state level. Dot Doyle, Instructor of Mathematics, coordinated the writing of the test. The Mathematics Department of North Carolina Central University, University of North Carolina-Chapel Hill, and Duke University submitted suggestions for the qualifying test.

HUMANITIES AND SOCIAL SCIENCES

Several modifications have been made in the Social Sciences curriculum. The course in American Society: History and Culture, with its emphasis on a more interdisciplinary approach, will replace the Advanced American Studies course formerly required of all juniors.

The students will be able to select from the following four courses: Arms and Ambassadors, Anger and Action, Telling Lives, and Words of Destiny. Any two options will meet the junior year requirement for a unit of Social Studies. Fifteen different course options are available for student selection during the 1983-84 school term. Five (5) are developed around the interdisciplinary approach.

German 3 and Spanish 4 will no longer be available as course offerings beginning with the next school term. Low student interest and staffing availability were deciding factors. Independent Study programs will be available for any student desiring either of these two course options. Fourteen different classes in five foreign languages will be available as student options in the fall.

Two semester courses, Electronic Music Laboratories and Sounds, have been added to the music curriculum for 1983-84.

COMPUTER SCIENCE

The School has recently made fundamental decisions regarding the computing facilities for next year and the years to come. Essentially, the decision was to provide a significant upgrade for the students, to dramatically improve access to the VAX for the faculty, to have all members of the administration take advantage of the capabilities computers offer, and to have a distributed system for much of the administrative needs. This last item is significant, as the administration has decided to take advantage of quality word processing capabilities without having the students pay the high price of slow response time.

The increased sophistication of student use of the VAX resulted in unacceptably slow response times (for students) on many afternoons. This slow response also posed a problem for the administration, but a distributed approach and the ability to schedule work for the morning meant that this was primarily a problem for academic use of the VAX. In keeping with the commitment to provide our students with the best computing facilities possible, the decision was made to upgrade the memory of the VAX.

Terminal access for students has not been at as high a level as I had hoped. The bulk of student terminals were acquired as a result of competitive grants. The faculty has had poor access to the VAX. In general, faculty have had to work in the same room as students or in Dr. Davis' office with the accompanying distractions. Additionally, letter quality printing required a trip to the Director's Office with the accompanying interruption of their schedule. The decision was made to significantly upgrade the number of student terminals and to provide the faculty a work room with good printing capability.

A detailed summary of the computing facilities for next year is found in Appendix A.

MENTOR PROGRAM

The Mentor Program in spite of initial problems involving safety and security clearances for many students last fall, has been a successful three year experience for both the students and mentors involved in this partnership program. Ross Baker, Biology teacher and coordinator of the Mentor Program for the past three years, has requested that she return to classroom teaching on a full-time basis next fall. Ross has done an outstanding job in setting up the logistics and developing and implementing guidelines for ensuring the successful continuation of this program. It is to her credit that the School now has a solid pool of mentors strongly committed to their continued involvement in this program. These volunteers consist of scientists and researchers from most of the major areas of science and mathematics and represent the entire triangle area.

Major areas of concern with the future operation of the Mentor Program center around the declining number of students enrolling in the program each year, time or lack of time commitment for students and mentors, transportation problems, background preparation of many of the students for successful participation in the mentor experience, and scheduling problems. Addressing these problems and securing personnel to coordinate this program next fall are major priority items of the administration. Dr. Hugh Haskell, part-time teacher of Physics, is currently working with Ross Baker in assessing the current program and developing procedures for preliminary work with the 1983-84 Mentor Program during the summer months.

ADVANCED PLACEMENT EXAMINATION

Over 59% of the student body registered for participation in the National Advanced Placement Examinations Program this spring. Placement examinations were administered to 133 students in the following disciplines: Chemistry, Biology, Physics, Mathematics, English, History, Foreign Languages, and Music. Student achievement scores on these placement exams exceeded the national norms in all disciplines for the past two years. Results of students' performance this spring will be available in mid-summer. A comparison of the percentage of students participating in the program in 1982 and 1983 is found in Appendix C.

SPECIAL PROJECTS WEEK

The entire student body participated in Special Projects Week activities during the week of February 28-March 4, 1983. Activities included individual/small group projects, faculty sponsored mini courses, educational field trips to four states, the District of Columbia and various points of interest in the surrounding triad areas. Margaret Schmidt, Student Intern from Duke University's

Doctoral Program, coordinated the week-long activities. A comprehensive study of the goals and academic effectiveness of this program is presently being prepared jointly by Dr. Rufus Owens, Chairman, Mrs. Schmidt, and the Academic Dean. The December report to the Board will include the results of this study. (See Appendix D for details of the 1983 program.)

NORTH CAROLINA SCHOLARS PROGRAM

Appendix E contains the School's proposal (approved by the Executive Committee of the Board of Trustee) which was submitted to and approved by the State Department of Public Instruction officials. Beginning with the Class of 1984, students at NCSSM will be able to meet the North Carolina's requirements for designation as North Carolina Scholars at commencement.

3.0 STUDENT ACHIEVEMENT AND EVALUATION

Many of our students participated in a wide range of competitive events this term. They have eagerly given up part or all of their extended weekends and holidays in order to take part in representing the School or participate in representing every facet of the School's curriculum. Their performance and achievement at local, state, and nation level have in all cases been commendable. The Awards Program booklet provides a summary of their superior achievement in many of these competitive areas.

EVALUATIONS

The December Report to the Board included an analysis of student failures for the fall quarter. First semester reports which included second quarter evaluations revealed an increase in the number of students with average or above evaluations and a decrease in the number of students, especially seniors, still experiencing some difficulty in academic subject areas.

Several factors can be attributed to this increase in student academic performances. The pass/fail ratio for the entire student body (91/9) approximated the ratio for the January 1982 reporting period. Reinstitution of Supervised Study for all students with failing grades, establishing of contractual agreements, and monitoring systems scheduled study periods between students with failing grades and their resident advisors, increased participation of faculty advisors in support programs for their students and weekly or bi-weekly contacts with parents of these students. Sybil Jackson, Resident Advisor, provided valuable support services as the liaison between faculty, resident advisors, and parents.

The forming of special sections in mathematics to meet the individual needs of some students has made a significant difference for many students. A large proportion of these students were able to achieve academic services and have responded well to the opportunities offered by these courses.

Seven students have withdrawn from school this school term, six for academic reasons and one for disciplinary action or personal reasons. The list also includes four seniors withdrawing because of substained academic difficulty.

4.0 OUTREACH ACTIVITIES

Preliminary planning for a Pilot Project for assisting in the teaching of Physics in Lincoln County began this spring. The Science Department has committed its resources, expertise, and released teaching time for one Physics teacher to this project. Dr. Hugh Haskell has agreed to serve as coordinator and lead teacher for providing assistance to three high school Physics teachers in the county. Joint planning conferences for developing this pilot project are scheduled during the summer. The project is expected to be implemented in the fall. (Appendix F)

The Summer Workshops on campus this year are taking on a rather different role than did the Microcomputer Workshops of the past two summers. There will actually be four separate sessions during the month of July. The first two weeks, beginning July 5, will have a session for Secondary Teachers in Laboratory Sciences and also a session for 50 rising eighth graders studying Earth and Space Science. The last two weeks of July will have a two week session of science activities for 50 elementary teachers and also a session for 50 rising seventh graders studying Life Sciences.

The Academic Dean and the entire science faculty participated in a joint venture this Spring which utilized the professional expertise, consulting capabilities, and teaching experiences. The course, Education 276, Teaching Science in Secondary Schools, an undergraduate education program at Duke University, was offered at the request of Duke University. The six students enrolled in this course engaged in a variety of learning experiences under the guidance and leadership of the science faculty and Margaret Schmidt, Intern from Duke University. (Appendix G)

A Proposal for involving the NCSSM teaching faculty and other public high school teachers in a joint partnership designed to provide supervision and direction for the practice teaching experience has been submitted to one of the nearby universities.

SUMMER WORKSHOPS

The off-campus workshops on microcomputers will be given at eleven sites across the state. Jim Ebert will coordinate these workshops. Materials will be sent to the sites in late June. The teaching staff has held a preliminary meeting on our campus. A total of 275 participants registered for this program.

MATHEMATICS AND COMPUTER SCIENCE

A. Grant Proposals

1. The department has submitted a grant proposal titled "Research for the Development of Teacher Training Materials on LOGO, Pascal, and C" to NIE. This was an unsolicited submission.

2. The department is interested in developing teacher training materials for Precalculus Mathematics.

3. Copies of the grant proposal sent to NIE have been sent to IBM, DEC, and Data General. We have received indications of interest from both IBM and DEC.

4. By the time of the Board meeting, we expect to have a proposal submitted to Bell Laboratories.

B. Support of the Administrative Uses of VAX

1. The support the department gives to the non-academic users of the VAX is a tremendous load, is increasing, and is taking a toll.

2. The decision to employ a graduate to help maintain the system next year will be an enormous help.

3. Helen Compton's new position means that there is an immediate need for another individual to provide support for the administrative use of the VAX. This position requires special skills and will be difficult to fill.

C. NSF-NIE Grant

1. Work on the NSF-NIE grant has been time well spent. The materials have been used with our students and are a major portion of the workshops we give in the summer.

2. The consultants have helped tremendously. Current plans call for the materials to include the diskettes and a booklet of activities. The extensive documentation will serve as support documentation for those who wish to go into the subject in greater depth.

5. RECOMMENDATIONS

Recommendations submitted by the Planning Committee for establishing the School of Science and Mathematics included long-range plans for selecting 15% of the student body from a national pool of applicants. This proposal would allow us to assemble within the school community gifted and talented students with a diversity of cultural, ethnical, geographical, and social backgrounds as great as their individual abilities, needs, and interests.

This multicultural environment would then generate an awareness of, and appreciation for, the differences between humans, their values, customs and traditions, which would serve to prepare this unique population for the global experiences and leadership roles they are expected to assume.

The premise for this recommendation should include the faculty we assemble in this environment as well. Therefore, serious consideration must be given to the geographical boundaries from which our teaching faculty is drawn. They should be expected to add a diversity of professional training, experience, and geographical experiences to this multicultural pool. Presently, the geographical boundaries represented by 96% of the teaching faculty here is encompassed within what is known as the Triangle area.

The national media and the uniqueness of the School have resulted in numerous inquiries from a national pool of master teachers. Their interest wanes, however, when a comparison is drawn between North Carolina's current salary scale for its professional educators and other states across the nation.

The Teacher Exchange Program recently initiated does provide one mechanism for increasing the cultural and geographical mix of faculty, but the program, because of its nature, does not provide for any continuity.

I, therefore,

> RECOMMEND that the Board of Trustees establish an Endowment Fund for Teachers. This fund would be used to supplement the existing North Carolina teaching salary in a manner comparable to other states where the priorities and progressive plans for quality education are similar to those articulated by the educational leadership of North Carolina.

As former trustee and member of the original Planning Committee, I was extremely pleased to include in my report to you how the faculty, following an indepth study and assessment of the curriculum offerings for the past two years, is making tremendous strides in restructuring the instructional programs so that it, as envisioned by early planners, embodies the concept of a learning laboratory, more innovative than traditional in the teaching and learning strategies utilized here. We are confident now in the ability of faculty and administration to continue to move forward in this direction.

The realities of such an innovative approach are the requirements for teaching faculty and resource personnel needed for such an innovative approach which cannot be equated with the normal and sometimes arbitrary method for determining staffing needs, i.e., pupil/teacher ratio. Our successful efforts over the past three years with the Mentor Program, Special Projects Week, Saturday Morning Symposiums as well as the current effort to provide for a viable laboratory research component within the curriculum were due, in large part, to the fact that curriculum offerings for this same period of time were relatively stable. The professional efforts of faculty, at this point, to become totally involved in curriculum study, revisions and implementations of new programs have demonstrated very clearly that our mission can only be accomplished here by increasing the number and kinds of known resources available here for accomplishing the challenges proposed by this mission.

The task becomes even more awesome when we realize the dual mission inherent in the establishment of the School. We are committed to serving two kinds of student populations here, students with untapped potential for giftedness, and students whose potential was tapped and allowed to develop early in their educational training.

I

> RECOMMEND that the Board of Trustees endorse the concept of providing the number of professional educators and resource personnel needed to accompish this dual mission of the School, without regard to any rule for established student/teacher ratio or class size norms.
>
> The uniqueness of our students' learning styles and preferences, the comprehensive curriculum approach for ensuring their superior intellectual growth and achievement during their stay here demand that we attempt to move toward providing an individualized program of education for every student who enrolls here.

SWH 6/1983

Media Dept. Report May 26, 1983

The following outlines a summary of major activities, events and accomplishments of the NCSSM Department of Media and Instructional Design between November 1, 1983 and May 30, 1983. It should indicate major progress in both facilities and program.

I. Professional Activities

Media personel have all been highly involved in professional activities related to their individual specialities.

A. Meetings

1. Turner - Southeastern Conference on Approaches to Bibliographic Instruction, Charlotte, N.C., Conference on Library Resource Management, Chapel Hill, N.C.
2. Herold - Southeastern Conference on Approaches to Bibliographic Instruction, Charlotte, N.C.

B. Professional Involvement

1. Henry - UNIX News and Electronic Mail Service Workshops; NCECS, RTP, N.C.
2. Turner - Microcomputer Database Management Workshop, Chapel Hill, N.C.; Dialog and on-line Bibliographic Retrieval Service Seminar, Chapel Hill, N.C.
3. Herold - UNIX News and Electronic Mail Service Workshop; NCECS, RTP, N.C.; Eric and Eler Database Workshop at Perkins Library, Duke University; Dialog Systems Seminar, UNC, N.C.
4. Phelps - Video Production and Scripting Workshop, Durham, N.C.; Intermediate Photography under Mark Weinkle, DTI, Durham, N.C.

C. Involvement

1. Henry - Vice chairman, City of Durham Cable Television Advisory Board.
2. Turner - Steering Committee, Microcomputer Users Group of Librarians in N.C., Executive Council, Durham County Library Association, Member, N.C. State Library Networking Task Force on Technology.
3. Phelps - N.C. Women in Communications

D. Recommendations - There is a need for more travel to national programs by all media personel. Changes in the field are coming so rapidly that the process of staying current with both technological advances as well as program potentials will require greater exposure and involvement.

II. Outreach Activities - The Media Department is constantly involved in projects and activities that are essential to the outreach of the NCSSM.

A. Departmental

1. Video tapes were produced for the following:
   a. Director Eilber's testimony in Atlanta. Hearings included an 8 minute tape about the school. Major portions of this tape were broadcast over satellite for the Appalachian Public Service Network's report on the hearings.
   b. Development office used a revised version of the above tape for presentation in Department of Commerce and other fund raising activities.
   c. A twenty minute video tape was produced for Sarah Hamilton to use in her presentation at the National Science Teachers Association meeting in Dallas in April.
2. Science Screen Reports provided to NCSSM by R.J. Reynolds Corporation have been made available to other school systems in the Triangle Area. The loan system was hopefully the initial step in a system to share far more of the NCSSM resources with N.C. schools.

3. Department involvement in summer workshops has included design and production of brochure and other materials and arrangements for additional needed mocrocomputers for the workshop.
4. Media Department is actively involved in the planning phases of the Lincoln County Project for the Remote Teaching Assistance in Physics.
5. A multi-projector slide presentation was prepared for the Heritage tea to dramatize and document the physical changes of the School to date.
6. The Admissions Department has made heavy use of media personnel for exhibits and other material during the recruitment procedures. Also both librarians were interviewers.
7. The bulk of the photography for the NCSSM Publication Dialog was provided by media services.
8. Plans are in process to use the school facilities for hosting a Dialog Information Services Training Seminar in the fall.

III. Curriculum

A. The nature of the media department's involvement in support of all curriculum programs makes it an integral part of most of the school programs and courses. The library staff has provided countless hours of support in gathering bibliographic materials and acquiring materials for reading lists. Media Services has often been cited by faculty as providing needed faculty support services of the nature that make real differences in their ability to offer the types of programs required by NCSSM. Some major support activities, as well as media-originated programs, are listed below:

1. Library Skills Test was developed and administered as part of the American Studies Classes.
2. All Juniors received instruction in November on the use of Dialog On-line information series.
3. Two Apple IIe microcomputers were added to media equipment, one as part of the on-line bibliographic services for the library and one for classroom use by the humanities faculty.
4. Special efforts were involved in bibliographic & reference support for Special Project Week and Europa Fest.
5. Library facilities, though limited, included displays for Europa Fest, Library Awareness Week, National Math Week, Woman's History Week, Martin Luther King, the Old West, and Black History Month.
6. Several audio teleconferences were provided, primarily for the Humanities Department. These included presentations by Senator Sam Ervin, the Science Attache for the Soviet Union, and the Italian Science Attache. Student Personel Services used the conference telephone for interviewing applicants for 1983-84 resident advisor positions.
7. A major short term goal for 1982-83 year was the addition of the Xerox 9200 copier as a first order of media support for teachers and staff. This equipment is now an active part of the school's daily routine, producing over 1.5 million copies since September.
8. Two videodramas were produced during special projects week by separate groups. Also media has been part of several students' projects involving photography or video, including an animation showing details of muscle activity in the legs during walking.
9. Photographic materials and video tapes are becoming far more active parts of daily instruction as well as special events. An average of 100 slides are produced per month.
10. Materials of all types including overhead transparencies and slides have been heavily produced for the Babcock instructors.

11. WRRD courses made heavy use of video equipment to record student project presentations for feedback to students, presentation to other classes, and evaluation purposes.
12. Guest lecturers were frequently recorded on video. Also drama productions were recorded.
13. Heavy use of audio tapes by the foreign language teachers has required duplication of an average of 60 German tapes, 40 Spanish tapes and 30 French tapes, twice per month.
14. Elaborate overhead transparancies for future biology courses is already underway.
15. Waterbear Wisdom - media newsletter published.
16. Design and organization assistance with presentation for student involved in research paper competition of N.C. Junior Academy of Science.
17. Design and production of self-instructional slide/sound presentation entitled "Introduction to the Microscope" for use in new Biology curriculum. Design and production primarily performed by Lauren Horacek, UNC graduate student in Instructional Design as class project for Education Course 111.

B. New Strategies - It continues to be the goal of Media that more active teamship will develop between media staff and instructors, with the production and use of better media materials resulting. Better matches of information and presentation to meet the needs of the individual learners continues to be the goal of the media staff. This year has seen a tremendous increase in positive attitude from all involved in media activities.

C. Recommendations - constant efforts from all levels need to be made to keep media a part of all curriculum activities. As technologies and information become more and more complex, the involvement of communications in the classroom needs less and less isolation and more direct and specialized support from information specialists.

IV. Staffing

A. Additions

1. 1982-83 has seen the vital addition of a second professional librarian, Ginny Herold, and a second part-time employee, Janet Harding. This has greatly increased the library's abilities to meet the curriculum needs of teachers, provide student programs over 80 hour per week, and continue growth of the collection.
2. Media also had very vital clerical support from Barbara Rich 1-2 days a week for much of the spring.

B. Needs - It continues to be stressed that any further expansion of media activities, especially with the addition of video production equipment with the addition of video production equipment will require additional staffing.

1. Library

a. The present temporary library clerk position needs to be reclassified as a library aide and made permanent. An additional half-time library clerk position should also be added. The increased staffing needs of the new facility will be substantial and these changes and additions are essential.

2. Media

a. Reclassification of the media technician position has already been recommended.

b. Additional production personnel are essential for program growth. Positions of value for greater involvement in the Academic program would be:

(1) a/v technician
(2) instructional designer
(3) copy center operator
(4) part-time clerical support for media services

    3. Recommendations
        a. A possible solution for offering support in the copy center as well as in an area that often requires temporary workers; bulk mail processing, would be to create a position that would combine these two activities under the supervision of Media.
        b. Part-time clerical support for the Media department, perhaps, could be combined as a clerical/graphics production person.

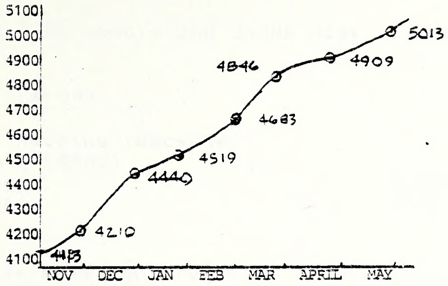
V. Physical Facilities
  A. New/Improved
    1. The major item in Media facilities is the new library area scheduled for completion in late June. Shelving and furniture has been delayed because of budgetary constraints, but bids are to be on June 1 with delivery hopefully by the end of summer. The advantages of the new facility are obvious with it soon to become the very hub of campus activity.
    2. Media production continues to grow and be refined in its location beneath the business office. Additional spaces presently used by student publication and storage would greatly enhance future production efficiency. Specialized areas will be needed for photographic production and files, video studeo and editing area, and an area for equipment maintenance.

VI. Equipment/Materials
  A. Additions
    1. Major equipment additions since last fall have included two Apple IIe microcomputers with communications equipment. These both only arrived during the last week in May. A new video production facility is expected as the result of a grant from Capital Cities Broadcasting. Also additional classroom audio equipment was purchased in response to interdisciplinary course needs.

  B. Needs
    1. Most equipment additions for 1983-84 are seen as either additional classroom support, communication equipment for The Lincoln County Project, or copy center equipment.
    2. Instructor requests from both Math and English departments have requested additional video monitors for each classroom on the ground floor of Beall Pavilion.
  C. Budget
    1. Budgets stand as presented last spring.
    2. One additional program for budgetary consideration is the provision in the library budget of $15/instructor for on-line data base searches on the Dialog System for curriculum development.

LIBRARY STATISTICS

COLLECTION GROWTH



REFERENCE ASSISTANCE

	NOV	DEC	JAN	FEB	MARCH	APR	MAY
STUDENTS	190	69	246	121	94	88	57
FACULTY	43	20	45	47	23	16	15
STAFF	18	11	19	13	9	9	8
	251	100	310	181	126	114	80

TECHNICAL SERVICES

RESERVE	60	138	24	22	5	5	
ORDERED	89	197	14			182	58
CATALOGED	130	98	232	204	217	107	176
PROCESSED	97	230	79	164	183	83	104
BINARY	18	0	43			67	
FILM ORDERED	31	25		10			

CIRCULATION STATISTICS

	NOV	DEC	JAN	FEB	MAR	APRIL	MAY
RESERVE	435	180	360	256	243	206	223
FICTION	26	31	32	80	57	50	37
000-099	2	3	6	2	7	1	1
100	5	3	24	20	9	6	11
200	6	8	3	9	5	0	0
300	16	12	17	24	16	18	21
400	0	0	0	2	0	2	0
500	67	75	122	135	104	44	39
600	16	10	19	26	16	1	6
700	8	6	8	11	4	1	2
800	14	12	27	46	29	21	28
900	39	11	34	54	33	15	7
INTER-LIBRARY LOAN	49	16	36	58	10	12	17
TOTAL	686	327	688	716	533	377	392

COMPUTING FACILITIES

/AX

The VAX will have 2.5 Mb memory and 240Mb disk storage.

nistrative users of the VAX

1. Eilber (VT101), Robbins (Decmate)
2. Walker (Decmate + LQP02) switch
3. McKeithan (VT101)
4. McKeithan (LA120)
5. Oates (VT101)
6. Silver (VT101)
7. Hamilton (VT101), Assistant (VT101) switch
8. Assistant-Oates (LA100 KSR)
9. Pendergrass (Decmate + LQP02), Leuchtenberger (VT101) switch
10. Cable (VT101), Benzaquin (VT101) switch
11. Frothingham (VT101), Gibbs (Decmate + LA100 RO) switch
12. Davis (VT100)
13. Compton (VK100) in Math Office (.5 admin and .5 student)

emic users of the VAX

14. Faculty (VT101 + LA100 KSR) switch
15. Faculty (VT101)
16. Faculty (Diablo 630 KSR)
17. Student (VT101) second floor
18. Student (VK100) second floor
19. Student (VT101) third floor
20. Student (VK100) third floor
21. Student (VT101) fourth floor
22. Student (VT101) fourth floor
23. Student (VK100) fourth floor
24. Student (VK100 + graphics printer) fourth floor
25. Student (VT100) fourth floor
26. Student (VT100) fourth floor
27. Student (VT100) fourth floor
28. Student (VT100) fourth floor
29. Student (LA120) fourth floor
30. General (LA120) fourth floor
31. ECS phone line
32. ECS phone line

Microcomputer Facilities

11	Apple II
3	Apple IIe
11	IBM PC
3	TRS-80
2	HP 87A
1	DEC Pro 350

These units will be distributed in the following way:

Library: 2 Apple IIe

English: IBM PC

Second Floor: IBM PC
2 Apple II
TRS-80

Third Floor: IBM PC
2 Apple II
TRS-80
HP 87A

Fourth Floor: Room 436: 4 IBM PC
4 Apple II

Room 442: 2 IBM PC
2 Apple II
HP 87A

Room 450: Apple II

Apple IIe (Teague)
DEC Pro 350 (Davis)
IBM PC (Math Office)

Ten of the IBM PC are on loan for two more years (the result of a recent pro
sal). Eight of the Apple IIs are the result of grants (Apple Foundation and
NSF-RIE). The HPs are a result of a grant. Ten of the student terminals are
the result of grants (DEC).

In the fall of 1984, ports 31 and 32 into the VAX will be allocated to an IBM
PC and the DEC Pro 350. If our recent proposal to DEC is accepted, we will
strong consideration to upgrading the memory to 3.5Mb, adding an expansion bo
for another 8 to 16 ports, and adding a C compiler. The priority is compiler
memory, and then ports.

If a soon to be prepared proposal is successful, we will have a VAX-11/730
running under UNIX on campus. This machine will be student managed. Addi-
tionally a committee of students will be formed to prepare educational softwa
at faculty request and direction. (Do not hold your breath; it is only a pro
posal.)

If an unsolicited grant is funded, we will have additional IBM PCs and DEC Pr
(Again, do not hold your breath.)

Professional Growth Activities of Teaching Faculty

I. Professional Activities
  A. Meetings Attended
    1. Mathematics Faculty
      a. Dr. Steve Davis continues to serve on the State Mathematics Curriculum Improvement Project. This project will end in June with a report to the State Board of Education.
      b. Dr. Davis spoke at the NIE sponsored conference titled "Teacher Shortage in Science and Mathematics: Myths, Realities, and Research."
      c. Dorothy Doyle serves on the State Mathematics Contest Committee.
      d. Dr. Davis will speak at a NCSU sponsored meeting in June.
      e. Dr. Davis spent two days in Charleston, S.C., to help the Charleston Consortium for Higher Education establish teacher workshops on microcomputers.
    2. Science Faculty
      a. The highpoint of the semester's involvement in external professional activities was the Annual Convention of the National Science Teachers Association held in Dallas in early April. The school's video-tape presentation, centered around the science program, was the focal point of a one hour session. Even though our talk was scheduled for 8:00 a.m., it was attended by more than 120 science educators who were interested in our novel efforts. The convention was also an excellent opportunity for John Kolena, myself and Dean Hamilton to keep in touch with current developments in science education around the nation.
      b. Most recently, in late May, three members of the Department and Dean Hamilton were able to attend a one day seminar at Hunter College in New York which dealt with involving High School students in individual research projects.
    3. Humanities and Social Sciences Faculty
      a. College Board Academic Advisory Committee (1)
      b. Rennselaer Polytechnic Institute Conference on the Place of Humanities and Social Sciences Within a Science/Technology School (1)
      c. N.C. Task Force for Indentifying the Gifted and Talented (1)
      d. Southeast Regional Conference for the Social Studies (2)
      e. North Carolina Council for the Social Studies Conference (3)
      f. International Computer Conference (3)
      g. College Board History Advisory Committee (1)
      h. Steering Committee for Southeast Regional Social Studies Conference (2)
  B. Summer/Fall Activities
    1. Mathematics
      a. Dr. Davis and Dick Brown will speak at the Knoxville meeting of NCTM in October.
      b. Dr. Lutz will attend a conference in June on the role of women in education.
    2. Science
      a. The professional development of the science faculty is aided in great part by the availability of some limited funds for summer activities. The Director's Professional Development Grant program is this year giving modest sums to several members of the faculty for activities ranging from Science

Centers and Museums to support for completion of a book in progress.

3. Humanities and Social Sciences
    a. Seminar for American and Canadian German Teachers in Schwabisch-Hall, The Federal Republic of German (1) Partial NCSSM Grant
    b. Instructors for Talent Indentification Program (4)
    c. Writing Program or Information Retrieval System (1) NCSSM Grant
    d. Study at Oxford and in Italy (1)
    e. Instructors at Governor's School
    f. Summer Study at Harvard (1)
    g. Music Composition and Preparation of Tapes for Junior Year American Studies Program (1)
    h. Preparation of materials for WRRD (Several Faculty Members)

C. Faculty Publications
1. Translators of Articles and a Book (2)
2. Author of book on North Carolina (1)
3. Editors of two Social Science Newsletters-one for state distribution and one for national distribution
4. Illustrator of book (1)

D. Department Activities
1. Mathematics
    a. The entire department is scheduled to make presentations at the October meeting of NCCTM.
2. Science
    a. The entire science faculty was involved with a new project this Spring which called upon our professional consulting capabilities. The undergraduate education program at Duke University proposed that we play a major role in a course designed around Science Education. There were six students who joined us during their Spring semester to observe and consult with us on a classroom and laboratory teaching design project.
3. Humanities and Social Sciences
    a. Europa Fest
    b. Black History Month Programs
    c. 3 Drama Productions
    d. 2 Spring Concerts
    e. Art Displays
    f. Interfesto Day
    g. Individual Student Recitals

E. Outreach Activities
1. Mathematics
    a. Dr. Davis will give full day workshops in Region 1 and in Region 7 during August.
    b. Dr. Davis spoke at a student conference in Raleigh.
    c. Dr. Davis at a teacher's workshop in Raleigh.
2. Science
    a. In the area of Outreach the Department's major new undertaking is a commitment to assisting the physics teaching in rural areas of the state. We have begun a program to aid the three High Schools in Lincoln County School in physics instructor with us this year, has agreed to coordinate this effort. Our preliminary contacts with the teachers and principals involved have been quite positive.
3. Humanities
    a. Southeast Regional Conference for the Social Studies (2)
    Presentations: Telling Lives: History As Biography
    The Microcomputer: History/Social Science Applications

b. Workshop for Curham County School Teachers (2) August, 1983
c. Workshop for Fayetteville Teachers (2) June, 1983
d. Exhibit at the Regional Conference for Combining Photography and Science (1)

NORTH CAROLINA SCHOOL OF SCIENCE AND MATHEMATICS

Advanced Placement Examinations

May 16 - 20, 1983

Examinations Administered and Total Number of Students Participating

Examination	NCSSM Student Participation 1982	1983
American History	29	46
Biology	49	56
Chemistry	32	36
English Lang/Comp	0	2
English Lit/Comp	0	2
European History	0	1
French Literature	4	2
Math Calculus AB	12	2
Math Calculus BC	49	37
Music Theory	4	0
Physics B	2	0
Physics C	13	7
French Language	1	0

	1982	1983
Total number of Examinations Administered	196	189
Total number of Students Participating	136	133
Percentage of Student Body Participating	45%	59%

Appendix D

the north carolina school of science and mathematics

Academic Office
(919) 683-6662

February 21, 1983

TO: Margaret Schmidt

FROM: Sarah W. Hamilton SWH
Rufus Owens

RE: Documentation of Special Projects Week - '83

It would be most helpful if you would document for us your impressions, observations, and assessments of the various components of the Special Projects Week. This documentation could be preapred in the form of an objective evaluation. It would be the first such data we have for attempting to evaluate this three year on-going activity. Rufus has listed below several suggested areas that might be included as a part of your evaluation. If you feel such an activity has merit as a learning experience in your internship and as a tool for future planning. We would ensure that you would have all the support you would need and "academic freedom" to prepare such an instrument. Let's plan to meet to discuss this.

1. A comparison of the independent projects done this year and last year.

2. A visitors impression of the amount of activity going on during the special week. Perhaps a survey that might be made of the number of students in the "common areas" during the sessions would be an indicator. Is there an "apparent organization"?

3. Analysis of the numbers of students in various types of activities (science, math, computer, language, art, social science, etc.).

4. Separate analysis of the faculty/staff participation.

5. Tabulation of the results of a faculty/staff evaluation of the activities of the week. This form to be prepared by Rufus Owens.

6. An overall summary of impressions and recommendations.

p.o. box 2418 west club boulevard and broad street durham, n.c. 27705

January 17,1982

To: Administration/Faculty/Staff
From: Special Projects Planning Committee
Re: Proposed Programs for Special Projects Week

In preparing for Special Projects Week(March 29th - April 2nd), we are requesting that you provide us with the titles and descriptions of those programs which you would like to offer the students. Programs can be developed in any of the following formats: field trips, mini-courses, and/or independent projects.

We are also eliciting students' opinions on what they would like to see offered during Special Projects Week. When a final list of offerings is compiled from Administration/Faculty/Staff/ Student inputs, students will either select one or more of the proposed options or will prepare a proposed independent program under Administration/Faculty/Staff supervision. The students must sign-up for five days worth of projects or programs.

We would like your list of Project Proposals returned to Ginger Wilson's mailbox no later than Friday, January 29, 1982.

Thank you for your cooperation

Department Heads, please explain this week to the new members of your department.

PROGRAM PROPOSALS

Name: ______________________________

Department: ________________________

POTENTIAL OFFERINGS FOR SPECIAL PROJECTS WEEK

A. Project Title: ____

____

Description: ____

____

____

____

Proposed Time in Days: ____________________
(1-5 days possible)
Special Needs(costs, transportation, etc.):----______________

B. Project Title: ____

____

Description: ____

____

____

____

Proposed Time in Days: ____________________
(1-5 days possible)

Special Needs (costs, transportation,etc.): ______________

C. Project Title: ____

____

Description: ____

____

____

____

Proposed Time in Days: ____________________
(1-5 days possible)

Special Needs(costs, transportation,etc.): ______________

Preliminary Schedule - Special Projects Week 1982 - 1983
Feb. 28 - March 4

Mon. 2/28	Tues. 3/1	Wed. 3/2	Thur. 3/3	Fri. 3/4

Trips

(full-time) #133 Troxler & Clayton - Washington, DC.

← lv. 8:00 a.m. ret 10 p.m. →

(half-time) #136 Wilson & Litle - Virginia & Washington, D.C.

← lv. 7:00 a.m. ret. 10 p.m. →

(full-time) #137 Jenner - Marine Biology Field Trip

← lv. 8:00 a.m. ret. 9 p.m. →

(full-time) #134 Liles & Teague - MIT

← lv. 7:00 a.m. Cambridge, MA. ret. 5 p.m. →

(full-time) #135 Meadows - Atlanta
C. Jackson

← lv. 7:00 a.m. ret. 11 p.m. →

(full-time) #138 Hyatt - Pennsylvania trip

← lv. 5:00 a.m. ret 11 p.m. →

Mini-Courses - Full Time (Monday - Friday)

102 - The Search for Extraterrestrial Life and Intelligence (Kolena, Haskell, Barr, Bellamy) BL 1

104 - Robot (Britton) BR 439

106 - Biofeedback (Lawson, Manring, Britton) BL 3

118 - Electronic Music (Foy, Hicken) BL 18

123 - Drama (Shabazz) H 3

Mini-Courses - Half-time

Monday Period A 9-11 a.m.	Tuesday Period B 10:30 - 12:30	Wednesday Period C 9-11 a.m.	Thursday Period D 9-11 a.m.	Friday Period E 9-11 a.m.
103 - Chemical Magic (Morse) BR 235	103 - Chemical Magic	103 - Chem.Magic	103 - Chem.Magic	103 - Chem. Magic
127 - German Young People (Mitchell) BL 5	124 - Sci.Fic.	127 - Germ.Y P	127 - Germ. Y. P.	124 - Sci.Fic.
124 - Science Fiction (Timson) BL 7	113 - Num.Theo.	124 - Sci.Fic.	124 - Sci.Fic.	110 - EL.Prob.
113 - Number Theory (Doyle) BL 9	131 - Esperanto	113 - Num.Theo	110 - El.Prob.	131 - Esperanto
110 - Elementary Probability (Martin) BR 450	101 - Sel.Top.Bio.	110 - El.Prob.	131 - Esperanto	101 - Sel.Top.Bio
131 - Esperanto (Houpe) H 4	121 - Latin Epic	131 - Esperanto	101 - Sel.Top.Bio	122 - Rom.Arch.
101 - Selected Topics in Biology (Baker) BR 336	132 - Beg.Phot.	101 - Sel.Top.Bio	*122 - Roman Architecture (Stadter) H 11	107 - Eyes & Ears
121 - Latin Epic Poetry (Stadter) H 15	129 - Lat.Am.S.S.	121 - Latin Epic	107 - Eyes & Ears	115 - EDT/Runoff
107 - Hands for Eyes & Ears (Link) BR 335	130 - Logo	107 - Eyes & Ears	*115 - EDT, Runoff/VAX (Compton) BR 447	132 - Beg.Phot.
132 - Beginning Photography (Liles) BR 452		132 - Beg.Phot.	132 - Beg.Phot.	129 - Lat.Am.S.S.
129 - Latin American Short Story (Toomey) H 11		129 - Lat.Am. S.S.	129 - Lat.Am. S.S.	130 - Logo
130 - Logo (Hawkins) BR 436		130 - Logo	130 - Logo	

* New Course

Mini - Courses - Half-time

Monday Period F 1-3 p.m.	Tuesday Period G 1-3 p.m.	Wednesday Period H 1-3 p.m.	Thursday Period I 1-3 p.m.	Friday Period J
116 - Architecture (Compton, Lutz) BL 9	116 - Arch.	116 - Arch.	116 - Arch	Entire School Community at "America Yes" production
114 - Logo (Hawkins) BR 436	114 - LOGO	114 - LOGO	114 - LOGO	
100 - Microphotography (Baker, Liles) BR 336	100 - Microphot.	100 - Microphot.	100 - Microphot.	
128 - French Symbolist Poetry (Toomey) H 11	128 - Fr.Sym.Poet.	128 - Fr.Sym.Poet.	128 - French Sym.Poet	
125 - Mystery & Detective Literature (Miller) BL 7	125 - Myst./Det.Lit.	125 - Myst/Det.Lit.	125 - Myst./Det.Lit.	
126 - Genealogy (Brown) BL 5	120 - Com.Inf. Ret.	126 - Geneal.	126 - Geneal.	
120 - Computer Information Retrieval (Barr) BR 450	119 - Mus.Comp.	119 - Mus. Comp.	119 - Mus.Comp.	
119 - Musical Composition (Foy) BL 15	105 - I.I.R.P.	105 - I.I.R.P.	105 - I.I.R.P.	
105 - Individual Instrumental Research Projects (Morse) BR 235	109 - Sci.Scen.	109 - Sci.Scen.	109 - Sci.Scen.	
109 - Scientific Scenario (Owens) BR 337	112 - Com.Us.Man.	112 - Com.Us.Man.	112 - Com.Us.Man.	
112 - Computer Users' Manual (Davis) BR 443				
106 - Biofeedback (Staff)				

Mini-Courses - Half-time

Monday Period A 9-11 a.m.	Tuesday Period B 10:30 - 12:30	Wednesday Period C 9-11 a.m.	Thursday Period D 9-11 a.m.	Friday Period E 9-11 a.m.
103 - Chemical Magic (Morse) BR 235	103 - Chemical Magic	103 - Chem.Magic	103 - Chem.Magic	103 - Chem. Magic
127 - German Young People (Mitchell) BL 5	124 - Sci.Fic.	127 - Germ.Y P	127 - Germ. Y. P.	124 - Sci.Fic.
124 - Science Fiction (Timson) BL 7	113 - Num.Theo.	124 - Sci.Fic.	124 - Sci.Fic.	110 - El.Prob.
113 - Number Theory (Doyle) BL 9	131 - Esperanto	113 - Num.Theo	110 - El.Prob.	131 - Esperanto
110 - Elementary Probability (Martin) BR 450	101 - Sel.Top.Bio.	110 - El.Prob.	131 - Esperanto	101 - Sel.Top.Bio
131 - Esperanto (Houpe) H 4	121 - Latin Epic	131 - Esperanto	101 - Sel.Top.Bio	122 - Rom.Arch.
101 - Selected Topics in Biology (Baker) BR 336	132 - Beg.Phot.	101 - Sel.Top.Bio	*122 - Roman Architecture (Stadter) H 11	107 - Eyes & Ears
121 - Latin Epic Poetry (Stadter) H 15	129 - Lat.Am.S.S.	121 - Latin Epic	107 - Eyes & Ears	115 - EDT/Runoff
107 - Hands for Eyes & Ears (Link) BR 335	130 - Logo	107 - Eyes & Ears	*115 - EDT, Runoff/VAX (Compton) BR 447	132 - Beg.Phot.
132 - Beginning Photography (Liles) BR 452		132 - Beg.Phot.	132 - Beg.Phot.	129 - Lat.Am.S.S.
129 - Latin American Short Story (Toomey) H 11		129 - Lat.Am. S.S.	129 - Lat.Am. S.S.	130 - Logo
130 - Logo (Hawkins) BR 436		130 - Logo	130 - Logo	

* New Course

PROPOSAL FOR
NORTH CAROLINA SCHOOL OF SCIENCE AND MATHEMATIC'S
PARTICIPATION IN THE NORTH CAROLINA SCHOLARS PROGRAM
APRIL, 1983

We endorse the concept inherent in the Scholar's Program which will be implemented in the public schools of North Carolina next fall. This concept, as well as the concept which led to the establishment of the N.C. School of Science and Mathematics, reflects both the concern and the sense of urgency North Carolina's leadership has shown for projecting and addressing the educational needs of today's youth for tomorrow's technological world. We at the School of Science and Mathematics strongly feel that the Scholar's Program should be an integral part of the instructional program and graduation requirements for all students enrolled here.

Our curriculum, designed to emphasize advanced preparation and training in mathematics and the sciences and to offer comprehensive experiences in humanities and social sciences cannot, at this time, provide the vocational educational training required of participants in the Scholar's Program. The two-year residency requirement for our students does not provide adequate time for students' to undertake vocational education requirements of Plan A or Plan B of the Scholar's Program. Any attempt on the part of students seeking enrollment at NCSSM to meet the vocational education requirements of Plan A or Plan B of the Scholar's Program during his freshman and sophomore years would seriously impair his/her ability to meet the rigorous and the selective criteria for enrollment at the School of Science and Mathematics.

We therefore request that serious consideration be given to designating the following courses as appropriate options for the vocational education requirements of Plan A and B of the North Carolina Scholar's Program. Since the structure and requirements of these courses closely parallel the criteria for and mission of vocational education as prescribed by the State Department of Public Instruction, designating these NCSSM courses as appropriate options for vocational education experiences would provide our students with the opportunity to compete with students in other public high schools for the honor of being designated a North Carolina Scholar.

MA215 INTRODUCTION TO LOGO *. One semester, two times a week (1/2 unit of credit).
Introduction to Logo is designed as a project-oriented course aimed at developing a procedural approach to problem solving. It will be taken in addition to the required mathematics course. The course is taught at a leisurely pace to ensure ample time for and experience in the analysis of the problem, developing procedures and subprocedures within a program to solve the problem, and debugging the program. The language Logo is learned as a byproduct of such projects. This course is graded Satisfactory/Unsatisfactory and satisfies the computer competency requirement. No prerequisite.

MA220 INTRODUCTION TO PASCAL *. One semester, two times a week (1/2 unit of credit).
This is an introduction to computer programming with an emphasis on problem-solving, use of the computer as a tool, and creative aspects of programming. The computer language Pascal will be taught. Students will be introduced to VAX/VMS and the architecture of the VAX. The course is graded Satisfactory/Unsatisfactory and satisfies the computer competency requirement. No prerequisite, although most students will have taken a prior computer course.

* In both MA215 and MA220 programming assignments will require significant amounts of time outside of regular class meeting time.

Mentor Guided Research and Study
Students spend three to five hours per week assisting professional researchers in Triangle area universities, institutions and industries in the following fields: mathematics, science, engineering, architecture and medicine. Pairing of researchers and students is arranged by a faculty coordinator who also monitors the plan and objectives of the student's participation. A periodic evaluation is completed jointly by the mentor, the student, and the faculty coordinator.

AR120 LINE DRAWING. One semester (1/2 unit of credit).
Teaches art fundamentals such as composition, shading, texture, and value by using pencil and pen and ink. The course will utilize studio still life drawing, outdoor mini-field trips, and commercial art fundamentals.

AR125 PRINTMAKING. One semester 1/2 unit of credit).
Exposes students to a variety of printmaking techniques, including collographs, linoleum block printing, silk screen printing, and etching. Students pursue a project in each printing medium.

AR130 CERAMICS. One semester (1/2 unit of credit).
Designed for beginning through advanced students. This course teaches basics of handbuilding and wheelthrowing earthenware and stoneware clays and includes glaze composition and kiln firing.

PH115 APPLIED ELECTRONICS. One semester (1/2 unit of credit).
Emphasis will be on pr[illegible]l application of electronics. One semester minimum length with indepe[illegible]rk to be arranged beyond one semester to advance as far as desired. Th[illegible]ill start [illegible]h basic electronic circuits and will use solderless breadboards to build and use these circuits.

AR210 ADVANCED PHOTOGRAPHY. One semester (1/2 unit of credit).
Prerequisite: Prior photography experience
Designed to provide the experienced photographer with advanced darkroom, studio, and "in-the-field" skills. Color photography is introduced. Class begins with formal instruction and evolves toward independent student work.

AR115 MECHANICAL DRAWING. One semester (1/2 unit of credit).
A course for students with moderate or no experience in technical drawing. The course will cover fundamentals of engineering and architectural drawing, utilizing a variety of technical drawing tools.

AR215 ADVANCED MECHANICAL DRAWING. One semester (1/2 unit of credit).
Prerequisite: AR115
Designed to let Beginning Mechanical Drawing students continue on more advanced work, emphasizing product design, assembly drawing, and exploded views. Architectural drafting will be introduced with emphasis on floor plans, site plans, elevations, perspective drawing, exterior and interior building details, and the development of a personal lettering style. The final project will be an original design of a building, space, or functional object complete with all drawings necessary for its construction.

CH310 CHEMICAL INSTRUMENTATION. One semester (1/2 unit of credit), or one year (1 unit of credit).
Prerequisite: General Chemistry
Co-requisite: Algebra 2/Precalculus or Precalculus
This course is designed (1) to make students familiar with the theory and operation of a variety of types of chemical instrumentation commonly used in modern laboratories; and (2) to help students develop the ability to design and carry out their own research projects. Students will be introduced to the theory and operation of each type of instrument and then will design an experiment which uses the instrument. First semester will be devoted to many aspects of chromatography and second semester to electrochemistry and spectroscopy. Students may register for either semester or both.

MU205 ADVANCED MUSIC THEORY. One year (1 unit of credit).
Prerequisite: Working knowledge of standard music notation
The study of music as systematic thought. The course will embody practical theory (harmony, counterpoint, form, instrumentation, and aural skills) and speculative theory (what makes a musical system? What makes a piece work or not work?). We will center on two pre-existing musical systems: tonality and serialism. Students will learn to study and write in both systems. At the end of the year we will attempt to create another system.

Community Service
As a requirement for graduation, students must successfully complete the appropriate number of hours required for the Community Service option they select. This program provides an opportunity for a student to be of service to a community while learning about community life, the working world and themselves. Juniors have various options to choose from to complete this program.

Work Service
As a requirement for graduation, students must successfully complete eight quarters of Work Service or quarter equivalents as determined by the Work Service supervisor. Each student is expected to be cooperatively involved in one of many work service duties for four hours each week. Contributions of time and energy provide not only a financial benefit to the School and ultimately the students but also permit a sense of communal involvement which creates a bond between those participating and their environment.

musical notation and historical styles, all seen as means toward the creation of intelligent, informed performances.

MU125 SOUNDS: A WORKSHOP IN MUSICAL PERCEPTION. One semester (1/2 unit of credit).
Study and production of sonic events with emphasis on twentieth century and electronic music. Topics may include: music in nature (bird-song, bio-music, ambient sound); acoustics (wave-motion, overtone series); silence; music and mathematics (fibonacci series, set theory) and any others deemed appropriate. Class will study and realize some pre-existent music, but the emphasis will be on making our own sounds through group compositions, improvisation, and North Carolina School of Science and Mathematics' Electronic Music Laboratory. No musical experience necessary.

MU130 ELECTRONIC MUSIC LABORATORY. One semester (1/2 unit of credit).
Electronic Music is music made up of electronically synthesized sounds and/or electronically altered "natural" sounds. This course will be centered around student compositional exercises and a final large composition using North Carolina School of Science and Mathematics' Electronic Music Laboratory. Techniques and processes to be learned include synthesizer and tape techniques, and basic composition skills. Pre-existing electronic music will be examined and used as a springboard for discussion for a number of topics including the following: the relationship between technology and art; logic and/or communication in sound; and the ethical (is electronic music de-humanizing?) and aesthetic implications of electronic music. No previous experience in music is required.

RECEIVED 7 1983

State of North Carolina
Superintendent of Public Instruction
Raleigh 27611

A. CRAIG PHILLIPS
SUPERINTENDENT

March 3, 1983

MEMO

TO: All Superintendents

FROM: Craig Phillips

SUBJECT: North Carolina Scholars' Program

During its meeting on March 2, 1983, the State Board of Education approved the North Carolina Scholars' Program, Plan A and Plan B. A copy of each of these plans is attached. This is another effort to encourage some students in your school system to pursue a well-balanced but more vigorous and challenging high school program.

The following comments are offered as further explanation of the program:

1. Participation in the North Carolina Scholars' Program is voluntary.
2. Completion of the requirements in Plan A or Plan B qualifies the student for the award of the North Carolina Scholars' Program seal.
3. In Plan B, additional units taken for concentration in a program area would be from the elective units.

At the end of the eleventh grade, it will be recognized that some students have nearly completed the requirements for the North Carolina Scholars' Program. Careful scheduling of twelfth grade courses will ensure these students the opportunity to complete those requirements.

In some cases, small schools may experience the lack of full-time certified teachers for some of the more advanced courses. Innovative ways to deal with this problem need to be considered (i.e. part-time employment of highly qualified people in the community). We will be happy to work with you individually in those situations where you have problems.

You are asked to share a copy of this memo and attachments with your guidance counselors, middle/junior high and high school principals as early as possible, so they can become familiar with the program and advise students accordingly. More information about the seal to be affixed to the diploma and other matters will be provided in the future.

It is our hope to have available soon an attractive brochure, describing the program, for wide distribution among students and the public. In addition, are working on a list of possible questions and answers relating to the new program to help in everyone's understanding of its elements as we progress.

The program is new. We recognize that there will be some problems in puttin it into effect. It does have real potential for good for all concerned.

Should you have questions about the program or wish other assistance, please contact George Kahdy or Jerry Beaver.

ACP:GAK:gb

Attachments

NORTH CAROLINA STATE BOARD OF EDUCATION
NORTH CAROLINA SCHOLARS' PROGRAM

PLAN A

The North Carolina State Board of Education, believing that the success of
- State and Nation depends on the full development of our youth and that some
idents should be encouraged to pursue a well-balanced but more vigorous high school
ogram, institutes a North Carolina Scholars' Program.

Beginning with the 1983-84 school year, students satisfactorily completing
quirements as identified by the State Board shall be named North Carolina Scholars
I receive special recognition by the State Board.

Course Requirements

Program Area	Units
glish	4
thematics - Algebra I, Geometry, Algebra II, one beyond Algebra II	4
ience - Biology, Chemistry, Physics (or in lieu of Physics, one other advanced science)	3
ocial Studies - U. S. History, Government/Economics, World Cultures (Prior to 1987, U. S. History plus two elective units)	3
oreign Languages - two levels of the same language	2
ealth, P. E.	1
ocational Education	1
rts Education	1
lectives - minimum of three	3
	22

Additional Requirement

Students must have an overall four year grade average of B or its equivalent as
etermined by the local board of education. Equivalency may be determined by numerical
rades or weighted grade point averages.

Recognition

. Students meeting all requirements for a North Carolina Scholars' Program will receive from the State Board of Education an appropriate seal of recognition to be affixed to the diploma

2. Special recognition events should be held in the school and community to honor the students and their parents. These should include appropriate, special recognition at graduation exercises.

3. The State of North Carolina as well as business and industry should consider awarding other special recognitions to these students.

4. Colleges and universities should consider the North Carolina Scholars' achievement when making decisions concerning acceptance by their institutions.

5. An identification of potential candidates for this achievement should be made at the end of grade 11. Candidates would include those students who, after completing their selected senior courses with the designated grade average, would be eligible for recognition. This identification of candidates would reinforce the students' efforts to achieve the recognition and could also be included on their application forms and/or transcripts to colleges and universities.

Appendix F

NORTH CAROLINA SCHOOL OF SCIENCE AND MATHEMATICS

May 19, 1983

TO: Charles Eilber, Director

FROM: Sarah Hamilton, Academic Dean SH

RE: Status of Pilot Project for Extension of NCSSM Classroom Instruction to Schools in Lincoln County

Below is a summary of our meeting held Wednesday, May 18, 1983 with representatives of the Lincoln County School System in Lincoln, North Carolina. Decisions reached for implementing a pilot project for Extended Classroom Instruction for the 1983-84 school year are:

(1) The North Carolina School of Science and Mathematics and the Lincoln County School System will develop and implement an experimental program in extended classroom instruction for the purpose of providing enriching educational experiences for students enrolled in Physics.

(2) NCSSM, serving as the resource center, will provide the mechanism for coordinating and extending the school's physical and human resources in physics, as well as the resources found in Universities/Colleges in the surrounding area, to all students enrolled in physics in the three high schools.

(3) Joint planning conferences will be scheduled throughout the summer for planning, developing and coordinating course content, topics and materials.

(4) The specific scope and nature of enriching experiences in physics in this extended classroom project will be suggested by the three teachers of physics and agreed upon by the joint committee in its first initial meeting in June.

(5) Dr. Hugh Haskell, physics teacher at NCSSM, will serve as coordinator of the pilot project.

(6) On Friday, May 20th and Wednesday, May 25th, Dr. Haskell will visit the classrooms of the physics teachers in Lincoln County and discuss preliminary plans for the June meeting of joint committee at the NCSSM.

(7) A planning conference is tentatively scheduled for week of June 6-10 at NCSSM. The agenda will include
   a. developing a time table for joint meetings this summer
   b. making definite plans for implementing the pilot program this fall and
   c. preparing a preliminary budget for presenting to the two administrative visits.

cc: Dr. Benny Coxton
Member of Joint Planning Team

May 26

To: Chuck Eilber
From: Hugh Haskell

Having completed my initial round of trips to visit the three Lincoln County high Schools, I would like to tell you of my impressions of these visits and indicate where I think we might go from here.

First, I was impressed that the three schools whose total enrollment is around 1600 students was able to support four physics classes with a total of about 60 students. The three teachers appear dedicated to providing the best physics instruction they are capable of, but are limited by lack of up to date equipment, storage space for what equipment they do have, facilities to conduct adequate classroom demonstration experiments as well as student laboratory experiments, and the fact that none of them is trained as a physicist (2 biologists, 1 chemist). Given the level of involvement in physics by the students in the area, it is probably unreasonable to expect that the physics classes in Lincoln County will ever be taught by physicists. In addition to physics, these teachers also teach courses in biology, chemistry, geology, photography and other science-related subjects. In view of the workload they labor under, their dedication to teaching physics is truly astonishing. (We physicists are a parochial lot. I know few of us who would be wiling to teach the spectrum of subjects that is routinely asked of these three.)

I will be coordinating at date for the teachers to visit NCSSM in the next couple of weeks with Marty Eady of the Lincoln County Superintendant's Office. At that time, I hope they will have had time to think some more about what we can do for them and we can formulate some definite proposals. In the meantime, I think there are a few things that we can do without getting involved in the big bucks that some of the high-tech ideas we have been talking about will require. Among them are:

1) Provide them with annotated lists of printed material that they can use to enrich their own knowledge and spice up their presentations.

2) Gather up as much of the already available audio-visual material of good quality as we can afford, and make it available to them on a loan basis.

3) Provide them with ideas, specicifications and plans for equipment that they can build themselves, perhaps with the assistance of shop or vocational students, for use in their physics classes.

4) Make available to them such equipment that we come across that is in excess of our needs (such as some of the trove of oscilloscopes we recently acquired from IBM).

These things have occurred to me over the past couple of weeks, and I'm sure that as we discuss these ideas further, more items of this nature will arise, such as providing a clearing house of guest speakers who might be available to talk to a class, either in connection with an unrealted trip to the area, or who might reside close enough to be able to come to the school without undue inconvenience (the McGuire nuclear plant is located within 5 miles of one of the three schools).

A possible additional benefit that might accrue from the third item above is the interesting of some vocational students in the possibility of a career as a research facility shop technician (presently a dying breed).

By emphasizing the things we can do immediately, without extensive investment in some technological innovations or media productions, I don't mean to imply that

I have lost interest in that aspect of the project. However, I think these are some things that can be done now to provide us with some immediate impact, thus giving us some breathing room for planning how to best implement the more exotic ideas that entail considerably more risk.

I have discussed some of the philosophy involved in this program (as well as the funding) with Borden Mace, and he has suggested that we may want to add one more county to this project. I think this might be a good way to increse our sample space a little, and give us some indication of how transportable this program can prove to be. We discussed some possibilities, one of which was Warren county, since it is reasonably nearby and is poor and rural. I suspect that, even if they offer physics, improving it might be so far down on their list of urgent needs that we might create more problems than we solve by going in there, but you might be more aware of their situation that I, or you might have another likely candidate in mind.

In connection with the second item above, I think it would be instructive to visit the Educational Development Center in Newton, Mass., sometime this summer to see what they have available and how they might be able to help us. It would be valuable if Borden could go along on this trip since he is acquainted with several of the senior people there.

I will try to find time on your calender sometime early next week to discuss these and some other matters relating to the Lincoln County Project.

Copy to:
Borden Mace
Sarah Hamilton
Jim Henry
Chuck Britton

North Carolina School of Science and Mathematics

Proposal to Provide

REMOTE CLASSROOM TEACHING OF PHYSICS

Charles R. Eilber
Director

1. North Carolina will soon require 20 credits for graduation. In addition, 22 credits will entitle graduates to be named North Carolina Scholars. These programs require advanced science courses. However, except in Biology many smaller schools do not have qualified science teachers.

2. Many North Carolina high schools do not provide quality courses in Physics, thus, it will be difficult for many students to meet requirements which include advanced sciences, particularly Physics (and Chemistry). Many do not offer Physics at all, and others offer it only on alternate years.

3. NCSSM could, as an experiment, provide instruction in Physics for schools where there is no qualified teacher and/or often too few students to justify assignment of a teacher.

4. The essentials of this experimental program would include:

   4.1 A pilot program of up to five schools with three to six students in each.

   4.2 Development of a course including topics, text, laboratory experiments, problem assignments, tests.

   4.3 Teaching by a combination of one pre-course meeting on NCSSM campus, followed by regular "meetings" (two or three per week) by teleconferencing. The equipment necessary at each site would be audio speakerphones accompanied by an electronic blackboard on which the instructor could write at his station and have material appear at the remote stations.

   4.4 Some material (print, video tapes, slides, etc.) could be exchanged by courier.

5. The program could also provide inservice training for teachers in the project schools who could take the course along with the students.

Science Instructors Learn Physics Teaching Via Telephone Course

In Rural Iowa, Professor's Class Will Help Alleviate Shortage of Qualified Teachers

By Susan Walton

Once every two weeks or so, Roy Unruh places a conference call to five science teachers in southern Iowa. The teachers, all of whom work in small, rural systems, have already received written physics lessons from Mr. Unruh, a college teacher who is one of 10 people on the task force that writes the lessons.

But the teleconference, conducted via speakerphones, gives the teachers a chance to hear Mr. Unruh elucidate the lessons and explain not only the principles of physics and mathematics but also how to present the material in ways the students will understand.

The teachers are participating in an experimental program that may be one of the first to exploit Alexander Graham Bell's invention as a tool to compensate for the acute shortage of science teachers. Iowa, like other states, has far fewer qualified physics teachers than it needs; to offer physics at all, many districts must use a teacher whose knowledge of physics is, Mr. Unruh says, "rather marginal."

The problem is especially serious in rural areas, which are less likely to be able to offer salaries that would retain highly qualified physics teachers. Yet those teachers who do stay (and who may have weak backgrounds in physics) are often strongly committed both to teaching and to living in rural communities, according to Iowa officials.

Hence, the Iowa program is concentrating on small, rural school systems, according to George Magrane, education consultant in the Southern Prairie Education Agency.

"That's what we're trying to do—keep these teachers in the rural schools," he said. "Most of them are biology teachers. At each of the five schools, each teacher has five teaching assignments. They also drive buses and lead cheerleaders. They're tuned into the rural schools."

The teachers are "experienced, veteran teachers," he said, who are in many cases making between $12,000 and $14,000 per year. "They do everything for that money. We're trying to help them out in any way we can."

Characteristic in Other States

Iowa's situation is characteristic of that in other states, according to Bill G. Aldridge, executive director of the National Science Teachers Association (N.S.T.A.).

In national surveys now being analyzed by the N.S.T.A., "that pattern is emerging," Mr. Aldridge said.

"The teachers tend to be less well qualified," in rural areas, Mr. Aldridge said. "They can't hire a full-time physics teacher; they have to hire someone who can teach physics, chemistry, and other things."

Mr. Aldridge said he was not aware of other school districts that were experimenting with conference-call science teaching, although some are considering the use of systems in which computers are linked by telephone lines.

Iowa's "telenet" program, which got underway this school year, was developed by the state education department's physics task force, chaired by Mr. Unruh, who is an associate professor of physics and science education at the University of Northern Iowa. The task force was given the assignment of thinking up ways to improve physics education, which had, according to Mr. Magrane, fallen into the same cycle that is worrying science educators elsewhere: Fewer high-school students are taking physics, which means that fewer are likely to study science in college, and that in turn shrinks the pool of candidates to become physics teachers.

The task-force members agreed, Mr. Magrane said, that there were other components to the problem besides that of underqualified teachers. One such component, he noted, was the materials used to teach physics, which he described as "fairly dry" textbooks that use few examples that students can relate to everyday life.

A second component was that of "delivery." If someone were to create better materials, how would they reach the teachers?

Decision Based On Cost

The decision to use telephones rather than more elaborate delivery systems, Mr. Magrane said, was essentially based on cost. "I thought of the cheapest way to go, and that was to try the speakerphone system," he said. "We call it our 'shoestring' program."

The program for the five schools cost $6,000 this year, and Mr. Magrane said the task force hopes to operate it for about $1,000 per school next year.

"Basically, we try to give them enough background in the content and the methodology so they have the tools to do the job," Mr. Unruh said. "We're providing the resources, and the teleconferencing allows us to be in communication with them."

Peggy Steffen, a science teacher at Fremont High School who is participating in the program, said that it has been useful to her and that the materials provided by the task force have been well received by students.

"I teach five different subjects, and that is one of the big problems of small schools," she said. "You teach such a wide variety of topics that it's very hard to keep up with knowledge."

In physics, Ms. Steffens said, she has taken only those courses necessary for certification—12 semester hours in Iowa. She has focused her subsequent coursework on biology. "In the other subjects, I just haven't gone back. A program like this new physics program is really helpful."

Ms. Steffens said that having Mr. Unruh's expertise to fall back on has made her more willing to tackle unfamiliar material. "I know that if I can't answer a question, I can ask him on the next teleconference, 'What was that about, anyway?' "

The students, she said, like lessons that teach them physics through everyday objects such as automobiles and motorcycles.

'High Visual Dimension'

Mr. Unruh said one of the task force's concerns was the need to cover visual, as well as written, information. "Scientific experimentation has a high visual dimension to it, and you have to communicate what you're doing pretty well in print in advance," he noted. Any program designed to use the telephone and written materials to communicate with teachers must take that into consideration, he suggested.

Mr. Unruh and others involved in the program caution that it is too soon to say whether they've succeeded in improving the teaching of physics.

"I can't declare it a success right now, but the teachers seem to think it helps," said Mr. Magrane.

Nevertheless, he added, the program has been helpful enough to warrant planning its expansion [illegible] about 45 schools next year, and [illegible]sibly making it statewide la[illegible]. There have been "rumors," ac[illegible]ing to Mr. Magrane, that the Na[illegible]tional Science Foundation might be interested in providing some money for the program.

Some involved in the program i[illegible] Iowa find that a little ironic. "If [illegible] had money, we'd solve the problem some other way," one official said.

Many Prospective Teachers Fail Colorado Test

State Education Chief Said 'Disappointed'

By John Chaffee Jr.
Special to Education Week

ea[illegible]h year enroll in state teacher-training programs or seek a Colorado teaching license.

NORTH CAROLINA SCHOOL OF SCIENCE AND MATHEMATICS

Every profession must accept responsibility for assisting in the training of its aspiring members, for helping establish the norms and values of the profession, and for providing further practice of skills in public settings. As educators, we at NCSSM believe it is our responsibility to ensure that those persons entering the teaching profession fulfill all the requirements of our profession. Every student in a professional teacher training program should successfully demonstrate his/her ability to perform in an actual classroom setting under an effective educator. Therefore, successful classroom teachers must be willing to supervise and direct these activities so that the student teacher learns through observation and direct participation. Opportunities for learning experiences should include all those activities in a school which can contribute to effectiveness in teaching.

The unique concept upon which NCSSM was established suggests that it might provide the ideal setting for the kinds of learning experiences required of persons planning to enter the teaching profession. Yet we are becoming increasingly aware that it is this same uniqueness that prevents the school from serving as an appropriate setting for providing a total learning experience for future teachers. Other factors also limit the kinds of learning experiences the school might offer. They include the length of the instructional program, the unique and diverse needs, abilities, and interests of the student body, and the concentration on math and science within the framework of a comprehensive curriculum. To overcome these limitations, we propose that NCSSM work in partnership with another Triangle area school to provide laboratory resources for student teaching. By offering the combined elements of two very different educational programs, the schools would provide perspective teachers, who would be able to participate in all programs in both schools, with training experiences that would be novel, diverse, and, certainly, unprecedented.

NCSSM and its partnership school would strive to provide a comprehensive teaching experience that closely parallels the activities and climate found in schools today. In the partner school, student teachers would find a heterogeneous mix of students, a traditional structure of secondary education, i.e. grades 10-12 and 9-12, as well as traditional levels of instruction, and many opportunities to interact with parents and other members of the community.

These factors, found to a minimum degree at NCSSM, are common to most public schools; therefore, a major portion of student teachers' time would be devoted to classroom instruction at the area school, while meeting their professional requirement of a period of sustained and concentrated teaching.

NCSSM would offer students a complementary experience. They would have opportunities to:

Observe classrooms
Assist teachers
Help with individualization of instruction
Learn about the school and its resources
Identify community resources

Attend department, faculty, and staff meetings
Discuss and utilize different teaching methods and strategies
Plan, organize and help implement different learning experiences
Determine objectives
Evaluate students
Grow professionally

The partner schools could establish an alternating schedule. Student teachers would spend an initial observation and orientation period at the area school, observe classroom techniques and take part in program activities at NCSSM, return to the partner school to complete their teaching experience, and conclude the program with a limited post-classroom observation period and seminar-type discussions at NCSSM.

Appendix G

Duke University
DURHAM
NORTH CAROLINA
27708

PROGRAM IN EDUCATION

May 19, 1983

Dean Sarah Hamilton
North Carolina School of Science
and Mathematics
1912 West Club Boulevard
Durham, North Carolina 27705

Dear Sarah:

I want to thank you and your staff and Margaret Schmidt for the excellent course for which you took responsibility for our Duke students this spring. Those students who worked with you and your faculty in Education 276 have spoken highly of the quality of their experiences under the tutelage of your science faculty. Please express the appreciation of our faculty and students to your faculty members and to Director Eilber.

Today I received a copy of the NCSSM request for payment and we have forwarded it to Dean Friedl's office. Payment to NCSSM should be forth coming shortly. Please let me know if a delay occurs and allow me to check on any problem regarding it.

We expect to see you soon and to thank you in person.

Sincerely,

Lucy T. Davis, Chairman
Program in Education

LTD/f

cc: Director Charles Eilber
Dean Ernestine Friedl
Dr. Fred Crossland

Duke University
DURHAM
NORTH CAROLINA
27708

PROGRAM IN EDUCATION

December 22, 1982

Dean Sarah Hamilton
Office of Academic Dean
North Carolina School of Science and Mathematics
1912 West Club Boulevard
Durham, N. C. 27705

Dear Sarah:

On December 21 I had the opportunity of discussing with our Academic Dean, Ernestine Friedl, the proposal that you and I have made regarding a course to be provided under the egis of the Office of NCSSM Academic Dean for Spring Semester, 1983. Dean Friedl has authorized me to confirm arrangements with you that $2,000 be paid to your office for the provision of this instructional experience for the several Duke students enrolled.

As you and I discussed earlier, our office at Duke will be responsible to contact these Duke students enrolled in Education 276 and arrange with you a time to convene during the week of January 10, 1983. I will be glad to assist the students in getting to your office on the agreed date and they can work out their schedules with your staff in that first meeting.

We are delighted to have this opportunity to have Duke students who are prospective science teachers have an opportunity to learn about science teaching in the environment of your school and under your leadership. I am glad, too, that Margaret Schmidt will be a part of the team that will work with them.

We want to help in any way possible without getting in your hair! So let me know what is needed whenever you think someone on the Duke end can help. Meanwhile, have a restful and happy holiday. We look forward to 1983.

Sincerely,

Lucy T. Davis
Chairman

LTD/b
Enclosures: List of Student Names
Bulletin Description of Edu. 276
Copy of University Schedule, Spring 1983
Copy of Grading System for Trinity College

cc: Dean Ernestine Friedl

240. Occupational Psychology. Factors affecting career choice, development, and midlife career changes; educational and career counseling; use of occupational and educational resources. 3 units. *Ballantyne*

241. Counseling Psychology. Foundations, historical development, scope, services, relationships with other helping professions, trends, and professional issues. 3 units. *Ballantyne*

242. Group Counseling. Theories and techniques of counseling for small groups of children, adolescents, teachers, parents, and other adults. Prerequisite: consent of instructor. 3 units. *Ballantyne or Gehman*

246. Teaching of Mathematics. Aims, curriculum, and classroom procedure for teaching secondary school mathematics. 3 units. *Staff*

248. Practicum in Counseling. Individual counseling, test administration, intake interviewing, diagnosis, program planning, and report preparation and evaluation. Minimum of 150 hours of case work and conferences with the supervisor. Prerequisite: consent of instructor. 3 units each. (May be repeated.) *Ballantyne, Gehman, or Sawyer*

249. Exceptional Children. Survey of major classifications of exceptional children: mentally retarded, emotionally disturbed, brain-injured, learning-disabled, physically handicapped; visual, auditory, or speech handicapped; and gifted. Etiology (biological and environmental factors), diagnosis, and treatment. 3 units. *Davis*

255. Assessment of Abilities. The selection, use, and interpretation of various instruments for predicting and evaluating the outcome of educational experiences including surveys of standardized tests of aptitude and achievement. 3 units. *Page*

258. Assessment of Personality, Interests, and Attitudes. Rationale, construction, use, and interpretation of standardized instruments designed for the assessment of students' interests, attitudes, and personalities. Emphasis on counseling applications. Prerequisites: Education 255 or consent of instructor. 3 units. *Staff*

260. Educational Research I. Research design, univariate quantitative methods, and applications of the computer to research problems. 3 units. *Page*

261. Educational Research II. Analysis of covariance and multiple regression, discriminant function analysis, computer applications in research. Prerequisite: Education 260 or equivalent. 3 units. *Page*

262. Educational Research III. Multivariate analysis of variance, factor analysis, cluster analysis, and path analysis. Education 262 is offered only in a block with Education 261. 3 units. *Page*

267. Energy Use in Educational Facilities. (Also listed as Mechanical Engineering and Materials Science 267.) 3 units. *Harman and Pittillo*

268S. Seminar in Contemporary Educational Criticism. 3 units. *Carbone, Di Bona, Johnson, or Martin*

276. Teaching of High School Science. Discussion, lectures, and collateral reading related to such topics as aims, tests, curriculum, classroom and laboratory procedure, field trips, and course and lesson planning for secondary school science. 3 units. *Staff*

277. Student Personnel Services in Higher Education. Student personnel services in postsecondary education; administrative procedures. 3 units. *Ballantyne*

For Graduates

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Registrations for Edu. 276, Spring 1983

Gary Robert Weider - Biology Major

Troy Kelly Weaver - Biology Major

Beth Ann Barnett - Zoology Major

Paula Kidd - Biology Major

NOTE: Sarah A. Shaffer, Chemistry Major, took Edu. 276, 1982.

the north carolina school of science and mathematics

Academic Office
(919) 683-6662

January 6, 1983

Dr. Lucy Davis
Program in Education
Duke University
Durham, NC 27708

Dear Lucy:

Thanks for the information on Duke University's policies and semester calendar. It was very helpful in getting the projected course 276 organized. Margaret Schmidt and I met with the science faculty on Wednesday, January 5. Her recommendations for strategies and methodologies to be used as we jointly sponsor Education 276: Teaching of Science in Secondary Schools are excellent and were enthusiastically endorsed by the entire science staff.

We are now ready to gear up for our initial meeting with the students. We have tentatively set our first meeting day for Friday, January 14, at 10:00 a.m. in the Academic Office. It would be helpful if we could have the pertinent information on each student registered for the course, i.e. class schedule, prior courses enrolled at Duke, etc.

If you would get this information to us and notify students involved of the meeting date, time and place, we would appreciate it. If perchance there are some problems with the date, please contact my office and we'll work to adjust the time, for this initial meeting, so it will be convenient for all concerned. We'd love to have you at this meeting, if your busy schedule would permit you to come over.

I have attached my resume as requested.

Thanks for taking care of the many, many preliminaries required to get this program off the ground. We here at NCSSM are really excited about the opportunities if will make possible for these students and our faculty.

p.o. box 2418 west club boulevard and broad street durham, n.c. 27705

Happy New Year! Thanks again, for the lovely flowers and more importantly, the thought behind them.

Sincerely,

Sarah W. Hamilton
Academic Dean

SWH:mg

NORTH CAROLINA SCHOOL OF SCIENCE AND MATHEMATICS

January 17, 1983

TO: Chuck Britton, Science Department Chairperson

FROM: Sarah W. Hamilton, Academic Dean SwH

RE: Schedule and Activities of Duke Students Enrolled in Education 276 While at NCSSM

Dr. Davis, Margaret Schmidt and I met with the students enrolled in Education 276 Friday, January 14. Presently, there are 6 students enrolled, 1 from UNC-Chapel Hill and 5 from Duke U., with a possibility of 1 additional enrollee. (Names and major areas of concentration attached.)

During the week of January 17-21 these students will be observing some of your science classes with your permission. They have been instructed to submit their weekly schedule to my office each Monday morning. I will, in turn, send copies of their schedules to each of you to keep you informed of their possible visits to your classes. During the week of January 31-February 4, they will select, with your permission, two science courses to follow and observe for the remainder of their term. During these orientation periods, they will be using a Class Observation Form to become familiar with various teaching methods, strategies, techniques, etc. Written descriptions of what they observe are part of their assignment. They will need a textbook for each of the two science courses they select.

The students have explicit instructions on their responsibilities and behavior while studying here with us. You have already offered your support and encouragement for this project. We certainly do appreciate the opportunity you have given to these students. It represents another dimension of the outreach concept for disseminating what we do here as well as an opportunity to share in the training of preparing to enter the teaching profession.

Your willingness to continue to give of your energy, talents and expertise, and constantly dwindling unencumbered time is a rare and certainly unmatched attribute.

SWH:mg

Education 276, Spring Term, 1983

Class Observation Report Form

Date: ____________

Title and Number of Course Visited: ______________________________

Instructor: ______________________________

Number of Students Attending Session: __________ Room Number: __________

Session Format (check one):

_____ classroom lecture; formal seating arrangement

_____ discussion in classroom; informal seating arrangement

_____ AV media session and discussion in classroom

_____ panel discussion in classroom

_____ written exam period in classroom

_____ laboratory session

_____ tutorial session

_____ other (please describe) ______________________________

____

Major Content of Class Session: (Briefly describe)

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Registration For
Education 276
Spring 1983

Students

1. Alice Bick
2. Gary Robert Weider
3. Beth Ann Barnett
4. Paula Kidd
5. Todd Harris
6. Lisa Hollman -UNC-CH

Duke University, Program in Education
Education 276, Teaching of Science in Secondary Schools
(3 semester hours, 1 unit credit, Spring Semester, 1983)

Introduction

Education 276 will be presented as a joint venture between the Program in Education at Duke, and the North Carolina School of Science and Mathematics (NCSSM) during the Spring term, 1983. Students enrolled in this course will spend time on the Duke campus and the NCSSM campus engaged in a variety of activities specifically designed to prepare them to teach science courses in secondary schools. Dean Sarah Hamilton, Office of Academic Affairs, and Natural Science Department Faculty Members at NCSSM will bear major supportive and responsible roles for the course. A Duke doctoral candidate, Ms. Margaret Schmidt, serving an internship at NCSSM, will also serve as a faculty member in this course. The course is structured; it also contains a large measure of independent activity to allow students the freedom to tailor exercises toward specific interests.

Instructional Objectives for Education 276:

To prepare students to teach science courses in secondary school systems by providing a course which contains the opportunity to observe master teachers of science, to study methods and strategies, to design a plan for a learning experience, to sample the most current literature pertaining to teaching science, and to discuss topics associated with teaching science in secondary schools.

Behavioral (Terminal) Objectives for Education 276:

When you have completed this course, you should be able to:

1. Discuss and apply various teaching strategies to science courses in secondary schools.
2. Design an acceptable plan for a learning experience in science for application to secondary level coursework.
3. Conduct a computer search of the literature, choosing appropriate descriptors, to obtain current information pertinent to science teaching at the secondary level, and annotate references from this search.
4. Discuss in detail, topics related to teaching science to secondary level students in gifted and talented settings, and in average settings.

Course Content:

Education 276 will be composed of five major groups of activities. All five are required elements of the course. These groups are:

1. Scheduled classroom observations of science teaching. Each observed period will be described in writing on a provided form. Collect these observation forms in a three-ring binder for submission at the close of term. You will choose two NCSSM science courses in different disciplines and attend classes regularly. Texts for the courses you choose will be loaned to you by NCSSM.

2. Computer search of educational literature. Funds will be supplied for you to perform a computer search in Perkins Library. Suggested topical descriptors could include:

   secondary school science curriculums;
   secondary school science curriculums for gifted and talented;
   science teaching strategies in secondary schools;
   science teaching strategies in secondary schools for gifted and talented.

   You may pick any 10 references obtained from your search; read the work and prepare an annotated bibliography. Submit both your computer search print-out copy and your annotated bibliography.

3. Preparation of a design/plan of a specific learning experience. Consult with a NCSSM faculty member from one of your two science courses, and choose a specific topic on which to base a design/plan. This plan should present all details toward:

   one lecture/demonstration/discussion period and
   one laboratory session in a science discipline.

   You should include in your design/plan options for its use in:

   a. the NCSSM setting
   b. the average secondary school setting

   and clearly show the difference between the two with rationale.

   Your NCSSM faculty member will serve as your sponsor for this project and grade this design/plan and its options. A form will be provided to them for this purpose. Specific guidelines for development of this plan will be discussed early in the course.

4. Classroom observations of non-science teaching. Near the close of this term, you will choose four NCSSM classes to visit which are non-science disciplines. You will file an observation report on these four sessions.

5. Discussion sessions in seminar format. You will be required to meet with Ms. Schmidt as scheduled on the Duke campus to discuss specific topics important to science teaching, such as laboratory safety; variation in strategy and format; discipline; AV aids and their use; ordering and laboratory set-ups; Tests--writing them, evaluating them, and grading them; teaching concepts rather than teaching facts; and use of resources outside the school to enhance learning. Attendance at these sessions is required.

Course Schedule:

Week of January 10, 1983:

1. Initial class meeting (TBA), introduction to course, and dissemination of course materials. Selection of day and hour for discussion/seminar sessions.

2. Selection of science courses to visit at NCSSM in order to choose two to follow. Submit schedule for intended class visits in weeks of 1/17/83, and 1/31/83, to Dean Hamilton for approval no later than 1/18/83 (Tuesday) at 5:00 p.m. Plan to attend a minimum of six separate classes during the weeks of 1/17/83, and 1/31/83.

Week of January 17, 1983

1. Attend scheduled classes at NCSSM. Fill out an observation form on each class.

Week of January 24, 1983:

1. Exam week at NCSSM. No class sessions will be held.

2. Meet with Ms. Schmidt for first discussion period.

Week of January 31, 1983: (No classes on Monday and Tuesday. Teacher workdays.)

1. Visit courses at NCSSM. Write observation reports for each session. Choose from visited courses two you wish to follow for the remainder of the term. Speak with the instructors to obtain their consent for you to follow their courses.

2. File an amended visitation schedule with Dean Hamilton's office for the two courses you have chosen to follow. Plan to attend a minimum (total) of four class sessions each week for the remainder of the term. This four session minimum covers both courses and may be arranged around both courses as you and your instructors agree. Fill out observation reports for each session attended. Obtain on loan, text copies for the two courses you have chosen. Texts may be obtained from Dean Hamilton's office or the course instructor.

3. Perform computer search in Perkins and begin readings of any 10 sources obtained and annotate.

Week of February 7, 1983:

1. Visit two chosen courses at NCSSM. Write observation reports for each session.

2. Meet with Ms. Schmidt for second discussion period.

Week of February 14, 1983:

1. Visit two chosen courses at NCSSM. Write observation reports for each session.

2. File intended design/plan topic with Dean Hamilton and Ms. Schmidt bearing NCSSM faculty member's signature as sponsor.

Week of February 21, 1983:

1. Visit two chosen courses at NCSSM. Write observation reports for each session.

2. Meet with Ms. Schmidt for third discussion period.

3. File intended visit plan during Special Projects Week with Dean Hamilton. One activity you choose should be a mini-course.

Week of February 28, 1983:

(Note: this is Special Projects Week at NCSSM)

1. Visit any three (3) scheduled activites in Special Projects Week at NCSSM. Write observation reports on each session. One of the three chosen activities should be a "mini-course."

Week of March 7, 1983:

(Spring Break at Duke)

Week of March 14, 1983:

1. Visit two chosen courses at NCSSM. Write observation reports for each session.

2. Meet with Ms. Schmidt for fourth discussion period.

Week of March 21, 1983:

1. Visit two chosen courses at NCSSM. Write observation reports for each session.

2. Annotated bibliography and computer search print-out due to Ms. Schmidt by 5:00 p.m. on Friday, March 25, 1983.

Week of March 28, 1983

1. Visit two chosen courses at NCSSM. Write observation reports for each session.

2. File intended visit plan for four non-science class sessions during weeks of 4/4, 4/11, and 4/18 with Dean Hamilton.

3. Meet with Ms. Schmidt for fifth discussion period.

Week of April 4, 1983:

1. Visit two chosen courses at NCSSM. Write observation reports for each session.

2. Visit non-science class sessions if scheduled, write observation reports on each session.

Week of April 11, 1983:

1. Visit two chosen courses at NCSSM. Write observation reports for each session.

2. Visit non-science class sessions if scheduled, write observation reports on each session.

3. Meet with Ms. Schmidt for sixth discussion period.

Week of April 18, 1983:

1. Visit two chosen courses at NCSSM. Write observation reports for each session.

2. Visit non-science class sessions if scheduled, write observation reports on each session.

3. Design/plan project due to NCSSM faculty sponsor for grading on Wednesday, April 20, 1983, by 5:00 p.m.

4. Submit class observation forms in notebook to Ms. Schmidt at close of week (April 22nd) by 5:00 p.m.

April 29, 1983 (Friday):

1. NCSSM faculty sponsor grades for project due to Dean Hamilton.

Week of May 2, 1983:

1. Course grades computed and delivered to Duke.

Grading of Education 276:

Grades for EDU 276 will be based on components of this course as described. No written exams will be used. Assigned course sections and the weighted percentage in this course are as follows:

	Maximum %
Class observation forms (45 session reports is the required minimum) =	30%
*Annotated bibliography (10 sources from computer search) and computer search print-out copy =	20%
*Prepared design/plan of a learning experience =	40%
Discussion period attendance and participation (6 sessions) =	10%
	100%

Equivalence Scale:

A = 90-100% inclusive
B = 80- 89% inclusive
C = 75- 79% inclusive
D = 70- 74% inclusive
F = below 70%

*One full letter grade will be deducted from the final grade computed if either the Bibliography/Search assignment, or the prepared design/plan project assignment are turned in after the assigned date and time.

Policies and Procedures:

1. Please take note that you are privileged visitors in classes at NCSSM. Comport yourselves accordingly. It is not necessary to dress formally; consider the fact that you will be judged--by students and faculty alike--by your appearance.

2. Should it be necessary for you to be absent from a class visit, call the instructor or Dean Hamilton's office before the session is scheduled. This is expected professional conduct.

3. Issue no opinions to students at NCSSM regarding your observations of classes. You are an observer and a learner, not a critic.

4. Be prompt for class visits. Should you be late, do not disrupt the class by entering unless the instructor knows you will be late and does not mind you entering the room.

5. Student dormitory areas are "off-limits" to NCSSM visitors unless you are accompanied by a faculty member. Dean Hamilton and/or the instructor will show you lounge areas available for your use.

6. Should you need to switch your class visitation plan for a valid reason, notify Dean Hamilton's office well in advance, and file an amended schedule for the week in question.

7. Dean Hamilton will instruct you regarding access to the cafeteria at NCSSM on days you may be there during the lunch period.

Library Resources for this Course:

All Duke University Libraries
NCSSM library (Hill House, Ground Floor),
Ms. Elizabeth Turner, Librarian

Suggested Readings (available in Perkins--not on reserve)

1. "Science Teaching in Secondary Schools"; by John S. Richardson; Prentice-Hall; 1957.

2. "The Exceptional Individual"; by Charles W. Teleford and James M. Sawrey, 4th edition, Prentice-Hall, 1981.

3. "Principles of Instructional Design"; by Robert M. Gagné and Leslie J. Briggs, 2nd edition, Holt, Rinehart, Winston; 1979.

4. "Curriculum Development"; by Daniel Tanner and Laural N. Tanner; 2nd edition; McMillan; 1980.

Telephone Numbers:

Dean Hamilton's office	683-6662	(Bryan Center)
NCSSM Library, Ms. Turner	683-6678	(Hill House)
Ms. Schmidt	684-2324	(at Duke Medical Center)
Room 04209, Red Zone	684-5172	
Duke South Hospital	684-6015	
Box 2929, DUMC		

Initial Materials from NCSSM for each Student:

1. Curriculum at NCSSM
2. Master Class Schedule
3. Four weekly schedule forms

Student Personnel Services

Michael E. Collins
Assistant Director and
Dean for Student Personnel Services

THE NORTH CAROLINA SCHOOL OF SCIENCE AND MATHEMATICS

May 31, 1983

MEMORANDUM

TO: Charles R. Eilber, Director

FROM: Michael E. Collins, Assistant Director
and Dean for Student Personnel Services

SUBJECT: REPORT TO THE BOARD OF TRUSTEES

1. RECENT AND CURRENT ACTIVITIES

1.1 ADMISSIONS

The fourth admissions cycle has been completed. A report (Appendix A) from Ola Stringer is attached. It is apparent that the many fine results of Admissions are a reflection of the dedication of the admissions staff itself. It is my opinion that the most significant change to occur this year is the implementation of a junior high school visitation program. Mrs. Stringer's report indicates that students from junior high schools in 34 counties were contacted by our staff. It is through such contacts that NCSSM will begin to identify potential nominees at an earlier age when some positive restructuring of the education experiences, and attention, they receive may make it possible for them to actually compete for enrollment as tenth graders.

Doug Spain will be leaving the NCSSM family. As a member of the Admissions Department for two years, Mr. Spain brought intelligence, organization and vitality to the job. He made many important contributions to the admissions effort principally in talent identification. His discerning approach to the program has created lasting benefit to NCSSM.

1.2 RESIDENTIAL LIFE

The Residential Life Department, under the leadership of Kathleen Benzaquin, provides the basic framework for student life at NCSSM. The impact of this department is felt through such programs as work and community service, student activities, the Host Family program, intramural and recreation, counseling and generally being involved in most of the students' life.

I am pleased to note that fewer than five resident advisor positions must be replaced (out of fifteen), creating an important element of stability as a fourth year of operation begins next August.

Current activities include a review of the student judiciary system, student handbook, preparation for student orientation, replacement of furnishings, cleaning and painting of dormitory areas, and the selection and training of student dormitory assistants (DAs).

A special program instituted second semester between the safety/security and residential life departments is the staffing of a security desk in Bryan Lobby every evening. This desk, staffed by DAs, is intended to control the visitor traffic flow between 6:30 PM and curfew time. It appears to be accomplishing its mission.

Resident Advisors are members of many of the school committees, sponsor activities for their halls, guide the students through important life decisions, communicate with the parents of their students about the adjustment and general progress made by those students and generally create the most supportive environment possible for the young people enrolled at NCSSM. I have stated before, and will do so again, for the record, that the success of the school itself throughout these critical first years rests in the quality of life established for our students. The structure and discipline, meted in firm and fair degrees by the Residential Life staff, resulted in a wholesome environment permitting the students to take full advantage of our fine instructional program.

1.3 GUIDANCE AND COUNSELING

Attached (Appendix B) you will find a complete report detailing the many excellent efforts of our Guidance and Counseling department. Rena Lindstrom, as head of the department, performed admirable work in pulling together a student adjustment program, college advising program (that rivals any secondary school in this country), individual counseling, including the use of mental health resources, research and outreach, and professional development, Ms. Lindstrom and her department colleagues have quickly established a thoroughly professional counseling program for NCSSM.

1.4 REGISTRAR

Rosemary Oates is completing the second full year of duties as registrar. As can be seen from the attached report (Appendix C) the position is more than one of maintaining student records. Its impact is felt in research, faculty and resident advisor student reports, the academic advising program and college advising. Under the leadership of Mrs. Oates, an efficient and professional system of compiling and using students and related records is now in place.

1.5 HEALTH SERVICES

Again this school year, NCSSM has enjoyed the benefit of an affiliation with Duke University Student Health Services. Attached is a report (Appendix D) from Dr. John Nowlin, resident physician, which outlines the scope of the service from January through May, 1983.

1.6 SAFETY AND SECURITY

Kenneth Horne, Supervisor of Safety and Security, has developed a staff that provides coverage twenty-four hours daily, seven days a week, year round. The staff, including Mr. Horne, numbers five members. In addition to foot patrols of the campus, they must check for safety hazards, check the fire/smoke alarm system, provide transportation services, including the upkeep of six school vans and two buses, as well as the semiannual training of student drivers. A report from Supervisor Horne (Appendix E) is attached and illustrates the scope and complexity of the safety and security assignments.

1.7 INTERSCHOLASTIC ATHLETICS

The interscholastic athletic program under the guidance of Mr. Branson Brown, has completed its second year of a highly successful sports endeavor. Over 170 students

(43% of total enrollment) participated in one or more sports this year. Teams were fielded in soccer, volleyball, tennis, cross-country running, basketball, baseball, softball and track. Teams were coached by members of the faculty and staff, and some citizens of Durham. Over thirty high schools in the Piedmont came in contact with NCSSM students through athletics. The total costs (uniforms, officials, equipment, coaching stipends, association dues, rental of community facilities and transportation) were underwritten completely through parent contributions.

The interscholastic athletic program was developed in response to student interest. This development exceeded expectations any staff or administrator had in 1980 when we opened the school. Student participation is open to all, and generally all who practice also compete. Students are screened for academic eligibility. We have observed that students who participate, in spite of limited athletic skill or background, are enthusiastic citizens of the school. Quite interestingly, many tout such involvement as a prod to use their time management skills. Many times I have observed our students reading chemistry or French texts while traveling to or sitting on the sidelines of a game!

If I can make one more plea it is to have the NCSSM Board of Trustees and administration commit itself to acquiring funds to complete playing fields and a gymnasium. Our students desperately require the recreational and athletic outlets.

2. ANTICIPATED NEEDS/PLANS

2.1 Playing fields and gymnasium.

2.2 Campus lighting system and closed circuit television monitoring plan.

2.3 Parents' Council involvement in Talent Identification plan.

2.4 Completion of employment process for Admissions Representative.

2.5 Completion of evaluation of Admissions Selection Factors.

2.6 Selection of Resident Advisor staff for 1983-84.

2.7 Visits to other residential schools for ideas regarding programs.

2.8 Development of a Career Interest/Planning program.

2.9 Expansion of SPS computer access and skills.

2.10 Expand secretarial staff in guidance and residential life departments.

2.11 Expand by one member, the safety and security staff.

2.12 Health education program jointly conducted by guidance, health services, and the physical activity departments.

2.13 Establish health advisory committee.

2.14 Formalize monthly meetings between Dean of Students and Health Services.

2.15 Correct remaining defective alarms in fire system.

2.16 Identification program for security of personal property.

2.17 Natural disaster warning system to be established.

2.18 Replace two aging vans.

2.19 Complete policy outline for student records.

MEC:gc
Attachments

APPENDIX A

THE NORTH CAROLINA SCHOOL OF SCIENCE AND MATHEMATICS

May 30, 1983

TO: Mike Collins, Dean for Student Services

ofs

FROM: Ola F. Stringer, Head of Admissions

RE: Report to the Board of Trustees

The admissions effort has strengthened and expanded over the past four years. This accomplishment is the result of a sequential series of planned programs. The talent search not only includes schools, but statewide offices, institutions, and community and professional groups. Research of the data collected during the search and testing phase has been organized for analysis through computer management. After three years of refinement, the selection process is effective and reliable. The admissions process designed for this unique residential setting is one of the best in the Nation. This report presents a review of the current selection process and criteria used for admission; talent search and selection results for 1983; and current and future activities.

1. Admissions requirements and procedures remain relatively the same as those established for the admission of the first class. Continuous evaluation and refinement of these criteria have resulted in a thorough process that is creditable and effective in identifying talented young people with intense interest and the greatest potential for high achievement in science and mathematics. The model is multidimensional and comprehensive, which not only includes a variety of tests but a number of other factors portraying student perceptions and teacher evaluations:

    1.1 Tests of aptitude, achievement, writing skills, and logical thinking (California Achievement Test; Scholastic Aptitude Test and Raven's Progressive Matrices);

    1.2 The Biographical Inventory which is a self assessment in areas of creativity, educational orientation, academic performance, and vocational maturity;

    1.3 School performance, including grades, along with types and academic levels of performance;

    1.4 Extra-curricular activities and community involvement;

    1.5 School and community assessment which evaluates such characteristics as inquisitiveness, experimental, innovative performance, analytic/divergent thinking, capacity for learning, and desire to achieve;

    1.6 Indicators of potential including evidence of curiosity and imagination, along with special interests and talents in science and mathematics;

    1.7 Student's personal written statements describing how the student could benefit from and contribute to the School, along with essays written in a logical, imaginative, and creative manner;

1.8 Interview ratings by NCSSM faculty and staff and letters of reference from various science and mathematics teachers.

2. The last Board Report articulated the efforts of the Admissions Office from summer involvement in workshops and seminars to the massive recruitment/ search effort launched to identify qualified students for this year's nomination pool. Doug Spain did an exceptional job of planning and implementing strategies for the recruitment effort. These strategies resulted in the receipt of 825 nominees seeking admission to the 1983-84 junior class. Seven hundred and fifteen of those talented young people completed the testing phase and entered the competition for a place in the semifinalist pool. Of the 379 semifinalists selected, only 9 chose for various reasons not to continue in competition for finalist status. Highlights from the search are as follows:

   2.1 The total number of 1983 nominees remained the same as for 1982.

   2.2 Efforts to reach minority candidates continue with a positive outcome. Overall, the minority nominee pool has increased steadily over the past three year period.

   2.3 Female applicants show a slight increase in 1983 over 1982 and a moderate increase when compared to 1981.

   2.4 The number of counties represented in the nominee pool has increased consistently since 1980.

   2.5 Region 5 (North Central) and Region 8 (Western North Carolina) reflect a significant decrease while Region 6 (Southwest) shows a noticeable increase.

3. The Admissions Selection Committee, composed of leaders in educational and scientific communities and NCSSM faculty and staff, is to be commended for their commitment to the task of choosing students for admission to the School.

   3.1 A thorough and careful screening of the 370 semifinalists by the Admissions Selection Committee resulted in the selection of 196 young men and women who have been invited to spend their junior and senior high school years at the School.

   3.2 The Admissions Office is pleased with the diversity of talent and the demographic representation found in the resulting selections. Students come from 66 of the 100 counties and 81 of the 143 school systems in the State. They are 58% male and 42% female and come from 116 public schools and 13 private schools. Forty-five of the students are Black, Hispanic, and American Indian.

Selecting students for admission to the School continues to be a total school and statewide effort. The Admissions Office is always appreciative of the assistance and cooperation of all persons involved in this valuable effort.

The admission of these four classes has required the greatest time and care using suggestions and recommendations not only of the NCSSM faculty, staff, and student body, but also results of meetings of professional groups and citizens from throughout the state. Currently enrolled students and their parents have played an exceptionally vital role this year in administering tests and presenting a realistic interpretation of the living and learning experiences in this unique residential setting.

Charts and graphs will present a comparative study of statistical information on each of the four classes selected for admission to the junior class.

4. Current activities are as follows:

4.1 Deborah Basket, a recent graduate of Duke University's graduate School with a Master of Arts Degree in Sociology, joined the admissions staff in February as a part-time Admissions Representative. Deborah's primary responsibility is recruitment in the junior and senior high schools within a two-hour driving radius of NCSSM. Deborah has done an outstanding job with this and other duties and is a valuable addition to the admission staff.

4.2 Visits and presentations to junior high and middle school students and student personnel began on March 23, 1983. At this time, 35 counties have been visited. Visits are designed to continue the regular talent search effort by impressing upon the young people the importance of early planning as they consider the opportunity available at the North Carolina School of Science and Mathematics and its' competitive nature. Visits have also included consultation with local and county level supervisors of instructional staff. The addition of Deborah Basket, Admissions Representative, has offered the opportunity to reach more students, parents, and school personnel in the junior high and middle school population.

4.3 Assistance has been requested from junior high school counselors to refer names of currently enrolled ninth graders as prospective nominees for consideration to the 1984-85 junior class. This program was designed to ensure that prospective nominees are not lost between the junior and senior high school. The materials mailed to junior high personnel were designed to ensure that the names of the obviously gifted as well as students with potential ability which might be obscured are referred to the Admissions Office for consideration. The names of those suggested will be added to the list of students to contact during the Fall 1983 talent search.

4.4 The list of statewide summer enrichment programs has been updated. Special materials and a visitation program schedule is now underway. The names secured will be added to the list of students to contact during the Fall 1983 talent search.

4.5 A joint effort with the Development Office has identified 24 NCSSM parents to assist with junior high school visists. Materials were designed and mailed to all parents during the first week of May. This pilot project will serve as the prototype of a larger and stronger network that will evolve during the Fall of 1983. It is our goal that parent volunteers will receive speaking requests from PTA's, PAGE, and other organizations in addition to the regular school population. In the past, parents attended school and evening presentations as one part of the total program. The current plan is designed to identify and train parents who will interpret the entire NCSSM model to schools and professional groups in their area.

4.6 Doug Spain has resigned from his duties as Assistant Head of Admissions effective July 28, 1983. The recruitment and talent identification/feeder program especially flourished under Doug's careful development and implementation. His exceptional planning and organizational skills will be most difficult to duplicate as we seek to replace him. The outstanding job done by Doug during his two year employment is greatly appreciated and we wish him success in his future endeavors.

5. Future activities include:

5.1 The Admissions Office has received 108 applications for employment for the Admissions Representative position being vacated by Doug Spain. By the time the Board meets, seven people will have been interviewed for the position, and hopefully, a well-qualified applicant chosen. This individual should begin work either the first week in July or the first week in August.

5.2 Results of several research studies and the admissions process is anticipated within the next few months. The Admissions Advisory Committee will be called into session to assess these findings and make recommendations and suggestions for revising criteria and procedures. An evaluation of the nomination and application forms are also anticipated in an effort to make them more relevant to the needs of school counselors and teachers recommending students.

The success of the admissions effort is directly related to the cooperation of NCSSM faculty, staff, students, parents, as well as statewide school and community leaders. Their receptivity, cooperation, and commitment to ensure that all students are made aware of this unique opportunity and valuable educational mission deserves praise.

THE NORTH CAROLINA SCHOOL OF SCIENCE AND MATHEMATICS

Demographic Make-up of Finalists for 1983-84 Class

	MALE	FEMALE	MINORITY	NON-MINORITY	TOTAL
Northeast Regional Education Center (Region 1)	6	5	3	8	11
Southeast Regional Education Center (Region 2)	13	10	8	15	23
Central Regional Education Center (Region 3)	26	18	14	30	44
South Central Regional Education Center (Region 4)	12	11	8	15	23
North Central Regional Education Center (Region 5)	22	11	3	30	33
Southwest Regional Education Center (Region 6)	18	15	8	25	33
Northwest Regional Education Center (Region 7)	9	6	0	15	15
Western Regional Education Center (Region 8)	8	6	1	13	14
TOTAL	114	82	45	151	196

RACIAL GROUP

Asian - 20 - 10%
Black - 37 - 19%
Hispanic - 4 - 2%
Indian - 4 - 2%
White - 131 - 67%

Males - 114 - 58%

Females - 82 - 42%

Counties Represented: 66

School Systems Represented: 81

Public Schools: 116

Private Schools: 13

5/83

THE NORTH CAROLINA SCHOOL OF SCIENCE AND MATHEMATICS

Demographic Make-up of Semifinalists for 1983-84 Class

	MALE	FEMALE	MINORITY	NON-MINORITY	TOTAL
Northeast Regional Education Center (Region 1)	16	16	7	25	32
Southeast Regional Education Center (Region 2)	23	23	14	32	46
Central Regional Education Center (Region 3)	44	36	23	57	80
South Central Regional Education Center (Region 4)	28	21	10	39	49
North Central Regional Education Center (Region 5)	38	20	3	55	58
Southwest Regional Education Center (Region 6)	28	28	11	45	56
Northwest Regional Education Center (Region 7)	17	12	0	29	29
Western Regional Education Center (Region 8)	17	12	1	28	29
TOTAL	211	168	69	310	379

RACIAL GROUP

Asian - 29 - 8%
Black - 58 - 15%
Hispanic - 5 - 1%
Indian - 6 - 2%
White - 281 - 74%

Males - 211 - 56%

Females - 168 - 44%

Counties Represented: 83

School Systems Represented: 107

Public Schools: 188

Private Schools: 13

5/83

THE NORTH CAROLINA SCHOOL OF SCIENCE AND MATHEMATICS

Demographic Make-up of Nominees for 1983-84 Class

	MALE	FEMALE	MINORITY	NON-MINORITY	TOTAL
Northeast Regional Education Center (Region 1)	29	39	13	55	68
Southeast Regional Education Center (Region 2)	49	52	28	73	101
Central Regional Education Center (Region 3)	91	76	31	136	167
South Central Regional Education Center (Region 4)	61	51	16	96	112
North Central Regional Education Center (Region 5)	72	43	5	110	115
Southwest Regional Education Center (Region 6)	80	71	16	135	151
Northwest Regional Education Center (Region 7)	31	36	3	64	67
Western Regional Education Center (Region 8)	27	17	1	43	44
TOTAL	440	385	113	712	825

RACIAL GROUP

Asian -- 48
Black -- 98
Hispanic -- 6
Indian -- 7
White -- 666

Males - 440 - 53%

Females - 385 - 47%

Counties Represented: 93

School Systems Represented: 123

Public Schools: 251

Private Schools: 23

5/83

THE NORTH CAROLINA SCHOOL OF SCIENCE AND MATHEMATICS

1983-84 Finalists As Compared To North Carolina Tenth Grade Population

REGION	TOTAL	PERCENT OF TOTAL TENTH GRADE	PERCENT OF TOTAL NCSSM FINALISTS
1	11	6%	5%
2	33	11%	12%
3	44	16%	22%
4	23	12%	12%
5	33	18%	17%
6	33	18%	17%
7	15	10%	8%
8	14	9%	7%
TOTAL	196	100%	100%
RACIAL GROUP			
Asian	20	0.2%	10.2%
Black	37	30.4%	18.9%
Hispanic	4	0.2%	2.0%
Indian	4	1.4%	2.0%
White	131	67.6%	66.8%
Sex			
Male	114	51%	58%
Female	82	49%	42%

THE NORTH CAROLINA SCHOOL OF SCIENCE AND MATHEMATICS

Distribution of Finalists 1980-84

	1980-81	1981-82	1982-83	1983-84
Northeast Regional Education Center (Region 1)	14	7	21	11
Southeast Regional Education Center (Region 2)	18	23	30	23
Central Regional Education Center (Region 3)	25	33	44	44
South Central Regional Education Center (Region 4)	20	20	36	23
North Central Regional Education Center (Region 5)	24	25	44	33
Southwest Regional Education Center (Region 6)	20	24	45	33
Northwest Regional Education Center (Region 7)	18	20	14	15
Western Regional Education Center (Region 8)	11	13	18	14
TOTAL	150	165	252	196
RACIAL GROUP				
Asian	9	9	13	20
Black	31	21	57	37
Hispanic	4	2	2	4
Indian	4	4	3	4
White	105	128	175	131
Other	1	1	2	0
Counties Represented	66	65	73	66

5/83

THE NORTH CAROLINA SCHOOL OF SCIENCE AND MATHEMATICS

Distribution of Semifinalists 1980-1984

	1980-81	1981-82	1982-83	1983-84
Northeast Regional Education Center (Region 1)	Information	21	33	32
Southeast Regional Education Center (Region 2)	Not	41	42	46
Central Regional Education Center (Region 3)	Available	62	91	80
South Central Regional Education Center (Region 4)		40	62	49
North Central Regional Education Center (Region 5)		44	76	58
Southwest Regional Education Center (Region 6)		56	80	56
Northwest Regional Education Center (Region 7)		36	27	29
Western Regional Education Center (Region 8)		16	43	29
TOTAL		316	454	379
RACIAL GROUP				
Asian		15	26	29
Black		23	69	58
Hispanic		1	3	5
Indian		4	3	6
White		260	350	281
Other		4	3	0
Counties Represented		79	83	83

5/83

THE NORTH CAROLINA SCHOOL OF SCIENCE AND MATHEMATICS

Distribution of Nominees 1980-84

	1980-81	1981-82	1982-83	1983-84
Northeast Regional Education Center (Region 1)	69	71	73	68
Southeast Regional Education Center (Region 2)	93	80	86	101
Central Regional Education Center (Region 3)	186	134	157	167
South Central Regional Education Center (Region 4)	112	85	114	112
North Central Regional Education Center (Region 5)	136	94	147	115
Southwest Regional Education Center (Region 6)	141	106	123	151
Northwest Regional Education Center (Region 7)	112	60	61	67
Western Regional Education Center (Region 8)	67	33	63	44
TOTAL	916	672	824	825
RACIAL GROUP				
Asian	7	21	29	46
Black	84	52	87	98
Indian	14	6	8	6
Hispanic	1	3	0	6
White	801	586	698	666
Other	9	4	2	3
Counties Represented	66	87	91	93

5/83

THE NORTH CAROLINA SCHOOL OF SCIENCE AND MATHEMATICS

North Carolina 10th Grade Population
As Compared To
NCSSM Finalists 1980-83

	STATE TOTAL 10TH GRADE 1982	TOTAL NCSSM FINALISTS 1980	TOTAL NCSSM FINALISTS 1981	TOTAL NCSSM FINALISTS 1982	TOTAL NCSSM FINALISTS 1983
Northeast Regional Education Center (Region 1)	6%	10%	6%	7%	5%
Southwest Regional Education Center (Region 2)	11%	12%	12%	13%	12%
Central Regional Education Center (Region 3)	16%	15%	19%	18%	22%
South Central Regional Education Center (Region 4)	12%	14%	13%	14%	12%
North Central Regional Education Center (Region 5)	18%	15%	16%	17%	17%
Southwest Regional Education Center (Region 6)	18%	15%	14%	17%	17%
Northwest Regional Education Center (Region 7)	10%	10%	12%	7%	8%
Western Regional Education Center (Region 8)	9%	9%	8%	7%	7%
	100%	100%	100%	100%	100%
Minority	31%	23%	18%	23%	23%
Non-Minority	69%	77%	82%	77%	77%
	100%	100%	100%	100%	100%
Male	51%	50%	54%	55%	58%
Female	49%	50%	46%	45%	42%
	100%	100%	100%	100%	100%

5/83

THE NORTH CAROLINA SCHOOL OF SCIENCE AND MATHEMATICS

Percentage of Nominees Accepted From 1980-83

YEAR	NOMINATIONS RECEIVED	NUMBER ACCEPTED	PERCENTAGE ACCEPTED
1980	912	151	17%
1981	672	165	25%
1982	835	252	28%
1983	825	196	24%

5/83

THE NORTH CAROLINA SCHOOL OF SCIENCE AND MATHEMATICS

COUNTIES NOT REPRESENTED IN NOMINATIONS -- 1980-1984

1983-84

1. Alleghany
2. Avery
3. Camden
4. Cherokee
5. Madison
6. Mitchell
7. Yancey

1982-83

1. Alleghany
2. Clay
3. Currituck
4. Haywood
5. Hyde
6. Macon
7. Mitchell
8. Pamlico

1981-82

1. Alexander
2. Bladen
3. Caswell
4. Cherokee
5. Currituck
6. Graham
7. Green
8. Jones
9. Macon
10. Northampton
11. Pamlico
12. Stokes
13. Yancey

1980-81

1. Beaufort
2. Caswell
3. Graham
4. Haywood
5. Hyde
6. Jones

5/83

THE NORTH CAROLINA SCHOOL OF SCIENCE AND MATHEMATICS

REPORT TO THE BOARD OF TRUSTEES
Office of Guidance and Counseling
June 1983

I. THE GUIDANCE PROGRAM

In January the department wound up the Introduction to Community Living course (a semester-long orientation program for juniors). Dr. Lawson, coordinator for this program, designed and administered a formal evaluation of the program at that time. The program is now being re-designed for next fall based on the data collected from students and the recommendation of ICL instructors. Major focuses and revisions include: (1) emphasis on small group dynamics with focus on personal issues arising from group living; (2) dropping the Study Skills module and offering assistance in developing study skills through a more appropriate, individualized format; (3) locating appropriate classroom space for group meetings (the formal classroom environment inhibits group development); (4) increasing the number of staff involved as facilitators. (Dr. Lawson taught as many as one hundred students a week in ICL); (5) integrating early junior orientation with ICL in an effort ot extend the formation of support groups and establish an identity with the larger community.

During the spring semester, the department offered continuing opportunity for students to consider issues of personal concern in a small group format through the "FOCUS '83" series. These groups were based on student interest and offered on a voluntary membership basis. A flyer describing the various groups is attached. A special benefit of this series was the involvement of teaching faculty and the community volunteers as group leaders. This Focus '83 program was greatly enjoyed by both students and group leaders.

Also in the spring, the department presented a day-long training workshop for resident advisors on Human Sexuality with particular emphasis on the adolescent and sexual development.

During exams, at the end of both first and second semesters, Stress Clinics were offered to the school community. These drop-in "stress-reducer" clinics included instruction in relaxation techniques and health habits conducive to relaxation, healthful refreshments and therapeutic massage. Students contacts for each session were approximately two hundred. A number of faculty and staff also took advantage of the program. These clinics were the joint effort of the Guidance and Counseling Department and the Student Council.

II. THE COLLEGE PLANNING PROGRAM

The work of advising senior students concerning colleges and assisting them through the application process continued through January. Details of this process were presented in the December Board Report. We continue to struggle with the high expectations of our students for individual attention and the magnitude of the work involved in running a program to serve all students, one hundred percent college-bound. Rick Bryant, who coordinates the college planning at NCSSM, is currently tabulating the student evaluation of the program and will prepare the second edition of the College Planning Update once that tabulation is complete. A summary of the most current statistical data related to college admissions, student selection for matriculation and financial aid is attached to this report.

By January, approximately one hundred college representatives had visited our campus and talked with our students. The arrangements for these meetings and the professional time spent in greeting these visitors is extraordinary. Both Ms. Silver, Administrative Secretary, and Mr. Bryant invested great effort in this activity, so important to developing mutual understanding between NCSSM and the colleges.

During the spring, Mr. Bryant begun working with the members of the junior class. Each student prepares for his individual conference by completing a "Self-Assessment/Personal Data Form" (see sample attached) which is reviewed with the student. An important part of each session is an assessment of the needs of the student in relation to standard college selection criteria--an important process in facilitating a match between student and college environment. At the end of the first session the student leaves the counselor with a list of colleges, usually ten or more, which are most likely to meet his needs; the student is instructed to begin his research making comparative studies of the institutions through use of the college information available in the Guidance Resource Center where materials regarding testing, scholarship opportunities, general college information, catalogues and information on special programs are housed.

The dissemination of information regarding opportunities for scholarships, summer programs, internships and summer jobs is central to the Guidance service. This information is kept current and announced to the school community through the Daily Bulletin and posted signs, a major task managed by Ms. Silver with great efficiency.

Beginning in March, a series of lectures on college planning was presented to the junior class. Speakers included admissions representatives from colleges and universities throughout the East presenting a diversity of perspectives on the important issues in college selection. Although attendance was somewhat sporadic until students were informed that the sessions were required, in general, the students took advantage of the opportunity to learn from these professionals the dynamics of choosing their educational environment. Again, these professionals donated their time and expertise to support the NCSSM program. Attached is a copy of the program announcement indicating the various session topics.

The School Recommendation, considered significant by colleges and universities in assessing a student for admission, is really becoming a burden for the counselors to produce. Next year, with two hundred and thirty seniors, a well-written, accurate and informative description of each student simply cannot be produced by the Guidance Department alone. It is hoped that faculty advisors will be willing to assist in this important effort. Mr. Bryant is in the process of developing a proposal for a system of producing these individualized recommendations to be presented to the faculty.

Mr. Bryant is also involved in planning the annual Invitational College Day, this year to be held on Saturday, October 29. More than one hundred institutions from across the country will be invited to visit our campus and talk with seniors and their parents.

In the fall, the college planning service will be augmented by a computer program which takes students through a college search process based on standard selection criteria. Although, ideally, a microcomputer would be located in Guidance so that work with the counselor could move directly to work with the computer program, catalogues, LRN system, files and other information resources within the Guidance Office, budgetary constraints have made this arrangement impossible. The program will be placed on reserve in the library where two microcomputers will be available. Still, information without guidance has limited value.

The Department will add a terminal for the Vax which should improve record-keeping in the administrative aspects of college planning.

III. INDIVIDUAL COUNSELING

The counseling services offered through the Department continue to be valuable to both students and staff. Both Dr. Lawson and Ms. Lindstrom have met with many students on an immediate, one-time only basis and have worked in a continuing counseling relationship with others. Jeff Hoffman, counseling practicum student from the Department of Psychology at UNC-Chapel Hill, made an important contribution to the work of the Department as consultant to counselors, faculty and residential life staff concerning individual student difficulties and in working directly with several very troubled students. Several students have been referred for counseling with professionals outside the school community.

The contract with the Mental Health Resources Consultant will not be renewed. Rather, the Department will employ a "fee for service" system when using outside psychiatric consultation.

IV. RESEARCH

The research project, A Guidance Needs Assessment, carried out in an effort to determine the guidance and counseling services most appropriate to the needs of incoming juniors is nearly complete. Over the summer, the data will be analyzed and an interpretive report prepared to be presented to the community.

V. OUTREACH

The articulation of NCSSM, its program and students, to other institutions has been carried out in several ways:

A. Members of the faculty and staff of NCSSM visited four colleges in North Carolina where our graduates are currently enrolled and talked with administrators and faculty who are currently teaching those students as well as with the students themselves. A detailed report of these visits is being prepared.

B. Rick Bryant, Coordinator for the College Planning Program, has visited a number of college campuses during the year (see list) expanding his own knowledge of opportunities available to our students and, in turn, helping those colleges understand the nature of the NCSSM experience.

C. A summer workshop for guidance counselors, sponsored jointly by the Guidance and Counseling Department and the North Carolina Department of Public Instruction, has been planned. This workshop, organized by Rick Bryant and Cynthia Jackson, Head of Research and Outreach, will be offered for two days in August in an effort to help counselors throughout North Carolina update their knowledge and skills in the area of college planning. We expect one hundred fifty counselors to attend the workshop, (see attached flyer).

D. A pamphlet explaining the goals and services of the Guidance Program at NCSSM is being readied for distribution to incoming students as well as the many others interested in the NCSSM program.

VI. PROFESSIONAL DEVELOPMENT

The Department has held two workshops for intradepartmental organizational development, enhancing our communication with each other and refining our planning skills.

VII. CONTINUING CONCERNS

A. Career Planning. While much discussion of career interests occurs during the college planning process, there remains no formally organized career awareness/development program at NCSSM. Funding of a grant proposal submitted by Guidance for the development of a Career Development Center for the Gifted has not yet been explored.

B. Computer Assistance. Computer facilities in the Department should be expanded to include a letter quality printer and a microcomputer. Software for the career planning, study skills, preparing for standardized tests, etc. would greatly enhance the services of the Department.

C. Classroom Space. Classrooms conducive to group guidance are badly needed. Twenty-five different small group classes were sponsored during the 1982-83 school year. These groups were forced to choose meeting times and places which would not conflict with regular classes. Classrooms available are designed for the lecture format and therefore limit the development of group cohesiveness important to the purposes of our programs. Our stress clinics during exams had to be continually moved from place to place. Ideally, there would be three classrooms/spaces available for small group use. These group rooms could be used by many other groups, student organizations, seminars, etc. when not needed for guidance programming.

D. Personnel. The Guidance Office is a "student intensive" office. There is hardly a moment during the day when there are not students in the office asking questions, seeking information and assistance. The Administrative Secretary must serve as receptionist, file clerk, supervisor of student workers, librarian, typist, advisor and administrative assistant to the professional staff. The expectations for the position are beyond reality. One simply cannot manage administrative tasks while attending to the immediate needs of students. Imagine trying to prepare a dinner for ten with a baby on each hip and several hanging on one's skirt. One must either get rid of the children or give up the dinner. The impact of Guidance services, the sensitivity to the needs of the community and our ability to respond most effectively would be greatly improved if these roles were divided among support staff so that there were both an administrative assistant and a receptionist/secretary. We are ambitious about the program and services of the Guidance Department. However, we cannot continue to expand and refine our services to the NCSSM community and the State of North Carolina without adequate support staff.

E. Recreational Facilities. While not directly related to Guidance programming, the opportunity for recreation is a mental health issue at NCSSM. Achieving students and staff alike need fit bodies and physical release. An environment which encourages physical fitness (and is available throughout the school year) is as essential to developing potential as is the school library. We cannot continue to put off attending to this need. Students will find means of "escape". We must provide them a healthful resource for both developing the physical fitness important to sustaining achievement and the opportunity to relieve the stress of extraordinary expectations through physical activity.

F. Health Education. It is hoped that a cooperative health education program can be coordinated between Guidance, Health Services and the Physical Activity/Wellness Program.

Respectfully submitted,
Rena Lindstrom
Head of Guidance and Counseling

ow To Survive Your Own Perfectionism

This group is designed for people who feel they must excel at all times and must always set the very highest possible goals. Anyone here like this?! NCSSM attracts excellent students who naturally want to excel. The purpose of this group is not to curb anyone's appetite for success or encourage students to resign themselves to mediocrity. It's to help those who are overly perfectionistic to evolve ways of understanding and dealing with their overdemanding tendencies so that they can pursue success in a more relaxed, self-satisfied manner--so that they are motivated by positive possibilities rather than driven by the fear of failure. The group will meet once, Saturday, April 23, from 1-4pm. Group leaders are Gary Lawson and Virginia Herold.

How Stress Affects Our Eating Habits

This seminar will focus on how we can develop self-destructive eating patterns in an attempt to cope with the stress in our everyday lives. Identification of the cultural and academic pressures that can lead people to use food as a means to solve their problems will be explored. Methods to break out of these patterns will be discussed. Meeting time will be April 13, 6-7pm. Group leader is Pat Lees, a counselor with Profile Associates in Chapel Hill.

Death And Dying

This seminar deals with death as the fulfillment of life. The purpose is to enable the participants to discuss the subject of death, to evaluate their own as well as society's perceptions about death and its rituals. Hopefully the seminar will also allow each participant to find greater meaning in life as he/she accepts their own mortality. Marilyn Gasswint will facilitate this seminar. Meeting times will be April 12, 19, 26 and May 3 from 4:15pm - 5:15pm.

Romance And Relationships

A consideration of the origin and nature of romance and its influence in relationships. A final session will include the showing of the film, Splendor in the Grass, starring Warren Beatty and Natalie Wood. A classic story of a teenage love affair. Three sessions, April 14, 21 and 28, 4:30pm - 5:30pm. Group limited to 12 members. Group Leaders: Rena Lindstrom and David Barr.

Right Brain / Left Brain

RIGHT BRAIN/LEFT BRAIN

This seminar will focus on the phenomena and utilization of the right and left brain hemispheres by humans. Such issues as origins of creativity, creative versus rational thoughts, and enhancing one hemisphere over the other will be explored. Group leaders will include Beth Timson, Randy Foy, and Andres Manring. Meeting time will be May 4, 7-8:30pm.

Altered States

ALTERED STATES

A consideration of the wish and ways people get high, naturally and otherwise. Group membership limited to ten. Group leaders: Paul Savery, Rena Lindstrom. May 4, 6:00 pm.

Inner Presence

INNER PRESENCE

How are great persons (Sir Thomas More, Gandi, etc.) different from ordinary people? A discussion of the development of internalized ideas of the self. An introductory presentation may be a continuing group if there is interest. Group leaders: Steve Salmony, Psychologist, John Umstead Hospital. Time: May 5, 4:15pm - 5:15pm.

Seniority

SENIORITY

A support group for senior women. This group has already commenced. For information see either Sybil Jackson or Rosalind Small.

On The Experience Of Divorce

ON THE EXPERIENCE OF DIVORCE

A group for students whose parents are divorced. This group has already commenced. Further information may be obtained from Jeff Hoffman.

NCSSM
COLLEGE PLANNING SESSIONS FOR JUNIORS
Spring of 1983

MARCH

9	INTRODUCTORY SESSION: "The Admissions Process" Guest Panelists - Rene Cabrera (Cornell University), Susan Staggers (Mount Holyoke College), Clenton Blount (North Carolina A&T State University), Kathlynn Ciompi (Vanderbilt University), Carolyn Bishop (UNC-Chapel Hill)
21	"Making Comparisons and Choices" Richard B. Bryant, Jr., NCSSM College Planning Coordinator

APRIL

13	"The College Application" Jennifer Hantho, Director of Admissions The American University
25	"A Closer Look" Panelists: MEMBERS OF THE NCSSM CLASS OF 1983 (Regina Dobson, Marina Bonaventura, Hih Song Kim, Murray Abramson, Mark Maxwell). These seniors discussed their approach to planning for college, sharing personal tips on moving smoothly from Point A to Point B.

MAY

10	"Financial Aid Opportunities" James A. Belvin, Jr. Director of Undergraduate Financial Aid at Duke Member of the Board, College Scholarship Service

COLLEGES VISITED IN OUTREACH
(listing by states)

FLORIDA

New College of the University of South Florida, Sarasota
Rollins College, Winter Park
Stetson University, Deland
University of Miami, Coral Gables

MINNESOTA

Macalester College, St. Paul
University of Minnesota, Minneapolis

NEW YORK

Columbia University, New York
Cornell University, Ithaca
United States Military Academy, West Point

NORTH CAROLINA

Davidson College, Davidson
Duke University, Durham
Guilford College, Greensboro
North Carolina Agricultural & Technical State University, Greensboro
North Carolina State University, Raleigh
University of North Carolina at Chapel Hill
University of North Carolina at Charlotte
Wake Forest University, Winston-Salem

Office of Guidance and Counseling
1982-83

NAME ______________________________

DATE ______________________________

COLLEGE PLANNING

SELF-ASSESSMENT AND PERSONAL DATA

1. Relate your sociological history briefly (i.e. family background, siblings and their ages, educational/employment background of parents, home community description, travel experiences).

2. Step back for a moment and try to view yourself as objectively as possible. Image that you, the objective viewer, have been asked to describe yourself, the "real" you. What words or phrases come most readily to mind? List at least five, at most ten.

    ____________________ ____________________ ____________________

    ____________________ ____________________ ____________________

    ____________________ ____________________ ____________________

    ____________________ ____________________ ____________________

3. What specific aspects of your makeup need improvement so as to make you feel more comfortable with yourself? How are you consciously working to strengthen the person you would like to be?

4. List significant extracurricular activities/community involvements prior to NCSSM.

NAME

5. List significant extracurricular activities/community involvements since your enrollment at NCSSM.

6. Leadership positions.

7. Special Honors (list chronologically by dates).

8. Do you have an inventive/creative nature? If so, describe yourself as such a person.

COLLEGE PLANNING
SELF-ASSESSMENT AND PERSONAL DATA
Page 3

NAME

9. What do you do very well? What are your talents?

10. What would you say has been, to date, your most stimulating academic experience? Explain.

11. What are your strongest beliefs?

12. Desired college major. ______________________________

13. Professional goals and objectives as they relate to this major.

____
NAME

14. Describe the ideal college environment for you. Consider setting, size, academic program, social environment.

15. TEST SCORES

PSAT:	Date______________	Verbal______________	Math______________
SAT:	Date______________	Verbal______________	Math______________
SAT:	Date______________	Verbal______________	Math______________
ACH:	Date______________	Subject______________	Score______________
ACH:	Date______________	Subject______________	Score______________

RETURN TO GUIDANCE OFFICE AT LEAST ONE DAY BEFORE SCHEDULED APPOINTMENT.

APPENDIX C

NORTH CAROLINA SCHOOL OF SCIENCE AND MATHEMATICS

Board Report 5/83 Registrar

The Registrar's Office continues to function in four major program areas: class registration and record-keeping; grade report preparation and distribution; transcript updating and dissemination; assignment of instructional space.

In addition: In February of this year the Office devised a routine of managing Special Projects Week registration and record keeping by adapting the POISE pre-enrollment VAX software package for this special need. The result was a significant improvement in management of the 370-plus students and a reduction in professional staff supervisory time. The improved records are now available for utilization in publication, grant application, or other staff requested areas.

In April the Office supervised the production of the revised and expanded 1983-84 course catalog.

In May the Office conducted training sessions for faculty/staff advisors of rising seniors pre-registering on campus for courses in 1983-84 and revised the preregistration mailing guide for entering juniors to conform to the new 1983-84 course catalog.

The following areas constitute a challenge to the Registrar's Office and are earmarked for immediate attention: (1) Development of an efficient and viable method of inclusion of co-curricular activities on the reverse of student transcripts; (2) Entry of all PSAT, SAT, Achievement, and Advanced Placement scores in the positions reserved in the electronic Student File. At present, such records are not centralized and thus not available for consultation, research, and publication; (3) Continuing development of addressing the technical problems of producing student specific staff/teacher comments in the grade reporting process. Turnaround time is now too slow; students and parents need faster feedback than the present ten days to two weeks after the close of a grading period. With the increased availability to faculty/staff of computer terminals in the 1983-84 school year, an investigation can be made of the feasibility of direct entry of student comments. This might also result in a significant saving in the use of temporary clerical computer input staff.

RO:abd

Rev. sed 5-18-83

Student Health Services, North Carolina School of Science and Mathematics: Report - Spring, 1983

For 1983, the North Carolina School of Science and Mathematics student health service enjoyed a relatively quiet spring. In particular, there were no "epidemics", other school-wide health difficulties.

Utilization figures for the on-site health care facility are presented in Table 1. This facility was available to the students from 0730-1530 hours daily with a physician in attendance from 0745 to 0900 hours each weekday. As seen in the first table, expected trends are present except for an unusually slack visit load during March. Junior students use the clinic somewhat more frequently than do the Seniors (55.1% of all visits for the former as compared to 44.9% of the latter). Also, as noted in previous summaries of clinic use, women students tend to be slightly more frequent users than do men (52.1% vs. 47.9% for the four month period January through April). During his daily sick-call stay, the physician saw 47.0% of clinic patients, the nurse taking care of the balance. Visit diagnoses are shown in Table 2. Respiratory sickness continues to predominate throughout the four months for which data are available. Injuries, fortunately mostly minor in scope, present the expected "good weather increase" during March and April.

For students with minor health discomforts, short-term "lie-down" beds are located in the clinic area. Students remain there during the clinic open hours and are then discharged to their rooms if improved or sent to the Infirmary if symptoms have persisted. A total of 32 patients took advantage of this service during the four months here reported.

The back-up facility, Pickens Family Practice Clinic located a mile from the NCSSM campus at the corner of Erwin and Trent Rds., was utilized on 38 occasions from January-April. This clinic was available for referral at the discretion of the school nurse or during hours when the NCSSM health care unit was closed. 15 x-rays, 8 blood tests were ordered as outcomes of those visits.

For the slightly more sick NCSSM student, the Duke University Student Health Infirmary was available for more intensive care. During the four months covered by this report, 26 students used this facility for a total of 72 days Infirmary care (average stay - 2.8 days). Eleven of the Infirmary admissions were for acute respiratory illness (42%). Three additional admissions were for management of mononucleosis. Gastro-intestinal disorders, skin rashes, headache comprised some of the other admission diagnoses.

With the student population remaining essentially unchanged for the next academic year (1983-84), no increase in current resources would appear necessary.

Recommendations for Academic Year 1983-84:

1). Establishment of a four-person committee (two students and two resident advisors) to meet with the director of the health service on a monthly basis to discuss health care issues which arise, examine new approaches for health care delivery.

2). Institute a monthly "Doctor's Night In" program, with a physician available for formal or informal discussion of health problems pertinent and interesting to the teen-age group.

3). Formalized meetings on a monthly basis with the Dean of Student Affairs to discuss specific and general health problems with interface with administrative policy of the School.

Table 1: Utilization of NCSSM on-site health care facility: Spring 1983

	Days Open	Total Patients	Patient Class Standing		Gender		Care Provider	
			Junior	Senior	F	M	M.D.	Nurse
January	18	227	132	95	111	116	91	136
February	20	169	103	66	96	73	84	85
March	21	81	37	44	44	37	44	37
April	15	149	73	76	94	55	75	74

Table 2: Reasons for utilization, NCSSM on-site health care facility
Spring 1983

	Respiratory Illness	Gastro-Intestinal Disorders	Accidents/ Injuries	Other Health Problems
January	47.6%*	18.1%	11.0%	23.3%
February	62.7%	11.8%	7.7%	17.8%
March	34.6%	9.8%	23.5%	23.5%
April	32.2%	12.8%	15.4%	39.6%

* percentages refer to proportion of all patients each month with health care problem.

APPENDIX E

THE NORTH CAROLINA SCHOOL OF SCIENCE AND MATHEMATICS

May 20, 1983

MEMORANDUM

TO: Michael E. Collins, Assistant Director
and Dean for Student Personnel Services

FROM: Kenneth W. Horne, Supervisor
Safety and Security

SUBJECT: Report for Board of Trustees

You will find listed below a statistical summary of safety and security activities for the time period December 1, 1982 thru April 30, 1983. At the end of this statistical report you will find a brief overview of goals and objectives accomplished since December 1, 1982 as well as goals and objectives to be accomplished during time period May 1, 1983 thru December 31, 1983.

COMPLAINTS INVESTIGATED	
Breaking and Entering	1
Larceny	13
Attempted Larceny	1
Property Damage	2
Motor Vehicle Accidents	3
Personal Injury	1
Trespassing	2
Missing Person	1
Lost Property	1
Curfew Violation	4
Off-limits Violation	1
Assist Person	4
Assist Maintenance	2
False Fire Alarms	19
TOTAL	55

PROPERTY DAMAGED		
Activity Bus	@	$200.00
State Vehicle	@	150.00
Door Glass	@	200.00
Glass Windows	@	500.00
TOTAL		$1,050.00

OBSERVATION REPORTS	
Security Hazards Reported	7
Safety Hazards Reported	3
TOTAL	10

PROPERTY STOLEN		
Bicycles	@	$430.00
Clothing	@	150.00
Telephone Tester	@	150.00
Wallets	@	27.00
Jewelry	@	635.00
Radio	@	35.00
Cash	@	36.00
TOTAL		$1,463.00

PROPERTY RECOVERED		
Jewelry	@	$200.00
Wallet	@	2.00
TOTAL		$202.00

REQUESTED ASSISTANCE	
Doors Locked	3,154
Doors Unlocked	3,231
Transports	544
Escorts	44
Other Requests	1,203

CHALLENGES OR EVICTIONS	
Challenges of Persons Made	292
Evictions of Persons Made	3

FIRE DRILLS CONDUCTED - 5

SCHOOL VEHICLE MILEAGE

Student Activities	5,864
Athletics	2,778
Mentor	4,288
Community Service	2,775
Academics	6,939
Debate Team	3,335
Security	850
Physical Activities	127
Guidance	562
Chess Club	1,289
Residential Life	29
Admissions	479
TOTAL	29,315

The Safety and Security Department continues to provide effective security coverage seven days a week, twenty-four hours a day. The manpower situation continues to put a strain on the Supervisor of Safety and Security, who provides seventy-five percent of the fill-in work when security officers are out due to illness, vacation, etc.

Although there are still some minor problems with the fire alarm system and periodic false alarms do happen, the frequency of these problems has been greatly reduced. As the construction projects in the Bryan Center come to a close, I forsee almost total elimination of false alarms and the problems within the fire alarm system.

As indicated in the statistical report, there has been a great demand for student transportation. During the time period covered in this report there have been over 29,000 miles driven using six vans and two activity buses. I am proud to credit this accident free and injury free accomplishment to my well trained work service student drivers.

In addition to these major Safety/Security functions, the following objectives have been accomplished thus far.

1. Final requests for the 1983-85 budget have been prepared and submitted.
2. The bus driver training program has been completed with twenty junior students being certified to drive.
3. With the cooperation of the residential life office, senior students work at a centrally located reception desk to aid in campus security.
4. Workshops have been conducted for designated individuals on the operation of the fire alarm system to aid Security in fire alarm response.
5. All vehicles under the control of Safety/Security have been serviced and maintained on a regular basis to ensure road safety.

The following objectives or activities will be accomplished prior to December 31, 1983.

1. To prepare and implement operation ID program to protect the property of all students, facutly and staff.

2. To prepare and implement an adequate parking control/decal system for all faculty and staff.

3. To provide bus driver training to a minimum of twenty incoming junior students to aid the transportation program.

4. To install an adequate tornado/disaster warning system directed at the prompt warning of faculty, staff and students to impending danger.

5. Purchase of two new multi-passenger vans to replace vans that are no longer road worthy.

6. To hire additional security manpower so that more security coverage and more efficient communications are available at night and on weekends.

7. To replace existing pager communications system with a more suitable form of communication (portable telephones or portable radios).

These activities will be accomplished in addition to the normal day to day safety and security functions.

Operations and Institutional Advancement

F. Borden Mace
Assistant Director for
Operations and Institutional Advancement

NORTH CAROLINA SCHOOL OF SCIENCE AND MATHEMATICS

May 31, 1983

TO: Charles R. Eilber, Director

FROM: Borden Mace, Assistant Director--Operations and Institutional Advancement

SUBJ: Report and Recommendations--Period Ending May 31, 1983

1. RECENT AND CURRENT ACTIVITIES

1.1 Financial Statements as of May 31, 1983 attached. Exhibit A.

1.2 Summary of Construction Activity:

1.21 Revised Master Plan completed.

1.22 Library - North Wing - first floor of Bryan Center is 95% complete--will be completed late June allowing time for stacks, books and other materials to be moved in this summer. Funds are needed for additional books, materials, furniture and fixtures.

1.23 Art Department (Old Surgery Building) has an old tar roof which leaks badly and water has damaged the structural walls and the adjoining ground floor passageway to the new R.J. Reynolds Residential Pavilions C,D, & E. Structural engineers and our architects will provide estimates for emergency repairs. However, since the estimate for total renovation is approximately $300,000, it may be advisable to move this construction project into a position of first priority.

1.24 Laundry lease to Durham Hospital has been extended to July 1, 1984 in return for one year's supply of steam without charge. (See Executive Committee minutes of May 9, 1983.) Major recreational field on northwestern corner of campus as outlined in Master Plan will be prepared as soon as funds are available.

1.3 Financial Assistance to NCSSM from the Fund for the Advancement of Science and Mathematics Education in North Carolina (FUND).

1.31 A Victory Dinner to honor donors for the FUND's $7,000,000 Threshold Campaign conducted by Chairman Bland Worley with the assistance of Governor Hunt, trustees, administrators and staff will be held on June 10, 1983.

2. PROJECTED ACTIVITIES

2.1 Operational Budget for 1983-85 Biennium

The budget request for the 1983-85 biennium has been submitted by the Governor to the General Assembly where it has been defended by the Director of NCSSM. Final action is expected by mid-June 1983. It is anticipated that with a student body figure frozen in the 380-400 range, annual operational funds will be approximately at the same level of $3,500,000 for each of the next two years. At this time, the school's requests for additional capital (construction) funds from the State of North Carolina are not even being considered. If there is a sustained and increased economic recovery in the state, the school's capital requests could be re-activated by the Governor at the short legislative budget session early in 1984.

2.2 Increased Fund-Raising Efforts

Following the Threshold Campaign, the NCSSM staff will increase its efforts to obtain program funding from foundations and federal governmental agencies. It will also plan for future and continuing efforts with parents, alumni and other friends in the private sector.

3. RECOMMENDATIONS

3.1 Internal and external management audits should be initiated to assist an Oversight Committee of trustees to examine the reports of standing committees, including the Educational Policies and Procedures Committee, and the reports of the Director, Board of Advisors and teachers, among others, to bring into balance and perspective the expenditure of funds with the established mission of the school. (See recommendation of November 30, 1982.) Costs per student (currently $8,750 annually -- approximately $2,000 per student for research, summer workshops and outreach programs) will come under increased scrutiny. Clear policies and supportive research will be necessary to defend the actions of the trustees. No endowment funds have yet been established for salary supplements for teachers, for instance, while the requests for capital (construction) funds continue to be made from the private sector.

3.2 NCSSM is perceived increasingly as a national model. The implications and responsibilities for promoting the idea of "a new direction" in state education need further consideration, as much to take advantage of the opportunities as to avoid spreading or repeating mistakes. Without the long record of high achievement of Stuyvesant and the Bronx School of Science (non-residential schools), certain university laboratory schools such as the ones at Hunter College and the University of Chicago, and the highly successful summer and early admissions programs for precocious youths at Johns Hopkins University, caution in making claims is recommended. It might be advantageous for education and America, however, if the NCSSM trustees took certain stands or philosophical positions, such as some or all of the following recommendations, to accompany the schools's auspicious start:

a) Good teachers are fundamental to improved education, and society in general needs to recognize their value. Accordingly, working conditions and perks such as sabbaticals must be drastically increased. Trustees should go on record for an across-the-board increase in teacher salaries over a period of years until the average faculty salary is doubled. This is certainly as important as multi-million-dollar laboratories, yet our action to date in this area, while encouraging, is not impressive.

b) A faculty senate should be encouraged to recognize the dignity and importance of the teachers to the operations of schools.

c) Multi-stage career paths based on merit, not seniority, at NCSSM should be established from probationary, to professional, to senior and finally master or head teachers with pay differentials at each step. Duties would be defined, but master teachers would still spend 75% of their time teaching. Incompetent teachers should be fired.

d) Direct contact between top-level scientists/mathematicians and students/faculty should be increased.

e) A clear sense of institutional purpose and school character with very high expectations for students and for teachers should be established to encourage self-discipline and responsibility. An honor code should be established. Curiosity, imagination, and experimentation without fear of failure or censure should be encouraged. Emphasis should be placed on creating successful life-long learners. (See "Individual Curiosity and America's Competitive Challenge.") Students and/or teachers who do not readily accept this philosophy and a rigorous but challenging program should be asked to pursue education elsewhere. Schools such as NCSSM are voluntary and are not for everyone. Director Charles Eilber struck the directional note in his paper, "A School for Excellence."

f) 60% of Resident Advisors (RAs) should be replaced (through attrition) with Residential Instructors (RIs) with outstanding credentials. For example, distinguished Professor of Biochemistry, Burr Furlong, (Ph.D., Texas, 60 published papers) and his biologist wife, Cynthia, who is certified in secondary science education in N.C. (their three children are already in graduate school) are enthusiastic about trying the idea of living on the NCSSM campus, teaching half-time and being full-time student advisors and counselors. Not only are they teachers and research scientists, Dr. Furlong is the author of some 63 major papers including 25 on DNA structure and metabolism and 10 on digital computers in biomedical research. Dr. and Mrs. Furlong are committed to the pursuit of higher intellectual processes, yet they understand the other needs of teenagers. (See "A Community of Scholars.") Since exploratory talks began here with Dr. Furlong, the University of Texas has suddenly endorsed for immediate implementation his long-standing proposals for teacher education programs in cooperation with science and math teachers in Houston.

g) Students should have "computer competency" by the end of their first semester and not wait until just before graduation. Tools as valuable as computers need early introduction.

h) All NCSSM students should have an interdisciplinary overview of the history and philosophy of science and mathematics introduced and credited to the Humanities Division and primarily taught by its faculty in conjunction with science and mathematics teachers during the student's first semester. The tyranny of the disciplines starts early and needs a counter balance. Connections and linkages are more important at this stage of development than additional disciplinary knowledge and concepts which can be acquired later. For instance, even as long ago as 1968, Dr. Furlong in a major address entitled "The Undergraduate Preparation in Mathematics for a Career in the Biological Sciences" called for, as our biology instructors do today, among other things, "a more general approach to college level education in the sciences by integrating mathematical, physical, chemical and biological concepts in combined courses designed around specific central problems."

i) More recreational and physically exerting opportunities as well as culturally enriching experiences are needed in a full and balanced schedule of intellectually and artistically stimulating activities without any sense of dichotomy between academic and student life departments. Ideally, these departments represent coordinated efforts at total development. After all, literature and life are great teachers. Music, art and poetry civilize us. Educators at their best challenge, assist, console and inspire us in the learning process.

Exhibit A
jh/5/27/83

The North Carolina School of Science and Mathematics

State Budget for Fiscal Years Ending June 30, 1981
June 30, 1982 and June 30, 1983

Summary*	80-81 Budget (150 Students)	81-82 Budget * (300 Students)	82-83 Budget * (389 Students)
Personal Services (1000) Series	$ 1,244,727 (52)	$ 1,858,427 (82.5)	$ 2,376,425
Supplies and Materials (2000 Series)	102,658	153,567	151,951
Operating Costs (3000 Series)	420,076	778,591	908,934
Fixed Charge & Other Expenses (4000 Series)	38,573	81,305	68,511
Total (Items 1000-4000)	$ 2,806,034	$ 2,871,890	$ 3,505,821
Capital Outlay Other than Buildings (5000 Series)	241,517	424,649	366,796
Transfers and Reserves (8000 Series)	450,054	154,787	372 **
Total (Items 1000 - 8000)	$ 2,497,605	$ 3,451,326	$ 3,872,989
Less Total Revenues (01 Series)	151,299	284,995	405,963 ***
Net Operating Budget	$ 2,346,306	$ 3,166,331	$ 3,467,026

*Detailed Breakdown on Following 3 Pages

** Reserve to be distributed to Operating Budgets

***Receipts from Fund for the Advancement of Science and Mathematics Education in North Carolina
Teacher Supplements - $101,000
Babcock Teaching Fellowship - $37,098
Outreach & Research - $37,046
Development - $11,292
Admissions - $2,508

The North Carolina School of Science and Mathematics
State Budget for Fiscal Year Ending June 30, 1983
Balance as of May 31, 1983

Object	Description	81-82 Budget (300 Students)	82-83 Budget (389 Students)	Expenditures & Encumberances As of 5/31/83	Unencumbered Balance As of 5/31/83
1211	SPA Regular Salaries-Approp.	768,755	921,845	792,733	129,112
1212	SPA Regular Salaries-Receipt.	35,742	65,673	37,789	27,884
1230	Premium Pay	2,737		2,565	(2,565)
1260	SPA Salaries-Temporary	1,007			
1240	SPA Employees on Loan	6,250	19,262	18,538	724
1261	Temporary Pay	41,564	16,920	13,354	3,566
1271	Longevity Pay-Approp.	5,350	1,128	5,984	(4,856)
1281	SPA Salary Reserve-Approp.	1,765	3,028	-	3,028
1291	SPA Teaching Salaries-Approp.	474,806	653,753	583,498	70,255
1292	SPA Teaching Salaries-Reserve	6,457	43,102	34,161	8,941
1293	SPA Teaching Additive	25,516	33,400	29,898	3,502
1295	SPA Teaching Supplement	62,211	94,680	83,757	10,923
1296	SPA Teaching Temporary	3,157		397	(397)
1414	Wages Non-Student	3,247	5,175	5,083	92
1450	Student Regular Wage	2,069			
1710	Board Members-Per Diem	805	750	135	615
1811	Social Security Contribution-Approp.	92,217	107,502	99,622	7,880
1812	Social Security Contribution-Reserve	3,067	15,277	6,463	8,814
1818	Resv-Social Secutiry Contri.-Approp.	116	641	-	641
1822	Retirement Contributiob-Receipt	3,546	19,479	6,549	12,930
1821	Retirement Contribution-Approp.	133,868	156,120	139,938	16,182
1828	Resv-Retirement-Approp.	134	189	-	189
1832	Hospitalization Insurance-Receipt	967	3,043	1,415	1,628
1831	Hospitalization Insurance-Approp.	36,278	57,960	43,480	14,480
1891	Employee Housing Allowance	501			
1920	Consultant Fees	25,500			
1930	Medical Fees	46,900	65,959	64,485	1,474
1940	Payments-Employees on Loan	4,200	4,686	4,621	65
1990	Other Contracted Service	69,695	86,853	54,298	32,555
	Total Personal Services	1,858,427	2,376,425	2,028,763	347,662
2110	Janitorial Supplies	10,791	13,000	14,963	(1,963)
2120	Bedding Products	1,717	792	792	-
2130	Clothing & Uniforms	727	350	336	14
2300	Educational Supplies	32,096	29,802	25,629	4,173
2400	Repair & Construction Supplies	43,620	30,841	24,911	5,930
2500	Vehicle Operating Supplies	10,613	13,781	8,945	4,836

Object	Description	81-82 Budget 300 Students)	82-83 Budget (389 Students)	Expenditures & Encumberances As of 5/31/83	Unemcumbered Balance As of 5/31/83
2600	Office Supplies	23,752	25,747	19,160	6,587
2900	Other Materials & Supplies	30,251	37,638	29,975	7,663
	Total Supplies & Materials	153,567	151,951	124,711	27,240
2110	Staff Travel In-State	468	7,288	187	7,101
3110	In-State Transportation	17,817	30,184	18,154	12,030
3112	In-State Subsistence	7,853	12,626	11,573	1,053
3120	Travel/Per Diem-Board Members				
3121	Out-Of-State Transportation	4,026	8,447	3,879	4,568
3122	Out-Of-State Subsistence	4,102	5,298	3,371	1,927
3130	In-State Travel Board				
3131	In-State Transportation Board	4,381	2,200	1,510	690
3132	In-State Subsistence Board	1,818	1,500	679	821
3141	Out-Of-State Transportation Board	940	750		750
3199	Travel Advances			5,065	(5,065)
3210	Telephone	29,529	41,000	44,620	(3,620)
3250	Postage	13,708	13,682	13,430	252
3300	Utilities				
3310	Electricity	84,847	120,960	110,576	10,384
3320	Fuel Oil	160			
3330	Natural Gas	6,132	11,000	14,527	(3,527)
3340	Water and Sewer	12,944	34,400	15,006	19,394
3390	Other Utilities	158,059	177,000	106,422	70,578
3410	Printing	4,368	780	779	1
3420	Reporduction Cost	15,451	20,957	9,120	11,837
3500	Repairs & Maintenance	108,487	45,574	28,519	17,055
3600	Freight, Express, Deliver	229	243	321	(78)
3700	Advertising	6,837	1,469	1,450	19
3800	Data Processing Services	649	3,763	1,415	2,348
3810	Data Processing Service	311			
3920	Moving Expense	451			
3941	Janatorial Services		1,000	650	350
3950	Employee Education Expense	62	633	472	161
3970	Seminars	27,331	23,824	22,755	1,069
3981	Food Services	253,864	322,303	309,830	12,473
3982	Laundry Services	298			
3990	Other Services	(304)			
3999	Miscellaneous Services	13,773	22,053	18,826	3,227
	Total Operating Costs	778,591	908,934	743,136	165,798

Object	Description	81-82 Budget (300 Students)	82-83 Budget (389 Students)	Expenditures & Encumbrances As of 5/31/83	Unencumbered Balance As of 5/31/83
4100	Rental of Real Property	4,725	649	692	(43)
4200	Rental of DP Equipment	6,616	6,526	1,761	4,765
4210	DP Equipment Rental	300			
4300	Rental of Other Equipment	26,446	13,306	15,799	(2,493)
4400	Service Maintenance Contract	25,047	30,363	33,443	(3,080)
4500	Insurance and Bonding	3,379	1,450	208	1,242
4760	Workmans Compensation	2,205		293	(293)
4910	Subscription and Dues	10,399	13,641	13,397	244
4960	Books and Publications	2,188	2,576	1,976	600
4750	Unemployment Comp. Benefits			2,233	(2,233)
	Total Fixed Charges and Other Expenses	81,305	68,511	69,802	(1,291)
5100	Office Furniture and Equipment	10,192	23,703	22,196	1,507
5200	Data Processing Equipment	20,089	7,500	7,500	0
5210	Data Processing Equipment-HA	9,313	25,792	54,160	(28,368)
5220	Data Processing Software	3,565	4,516	2,893	1,623
5300	Educational Equipment	68,939	38,638	46,883	(8,245)
5400	Vehicles	50,039	22,295	22,295	0
5500	Other Equipment	179,503	148,670	135,620	13,050
5600	Books	54,831	52,056	51,936	120
5800	Building & Fixed Equipment	28,178	43,626	39,532	4,094
	Total Capital Outlay Other Than Building	424,649	366,796	383,015	(16,219)
8145	Transfer to Code 48001	115,000			
	Transfer to Interagency	39,787			
8325	Reserve for Science High School		372	0	372
8444	Total Transfer-Non Operating	154,787	372		372
	Expenditures	3,451,326	3,872,989	3,349,427	523,562
0307	Federal Funds DOE		1,611	1,611	0
0393	Employee on Loan Reimbursement	8,004	19,378	19,215	163
0480	Transfer from Previous Year	112,134	39,787	39,787	0
0942	Copier Reimbursement		100	142	(42)
0600	Rental and Lease Income	11,036	11,036	0	11,036
0701 -0706	Registration Fees	26,850	71,250	20,685	50,565
0703	Damaged Book Fines		478	507	(29)
0830	Foundation Grants	125,821	260,323	192,447	67,876
0917	Annuity Clearing Account			514	(514)
0999	Miscellaneous Income		2,000	14,828	(12,828)
0911	Employee Health Benefits			4,326	(4,326)
0356	Dept. of Cult. Resource	1,150			
	Revenues	1,995	405,963	294,062	111,901
	Appropriation	3,166,331	3,467,026	3,055,365	411,661

Outreach and Research

Cynthia L. Jackson
Head of Outreach and Research

OUTREACH AND RESEARCH
REPORT TO THE NORTH CAROLINA SCHOOL OF SCIENCE AND MATHEMATICS BOARD OF TRUSTEES
JUNE 1983

OUTREACH

Second Biennial Conference Follow-up

In January 1983, a follow-up questionnaire was mailed to each conference participant requesting information on the status of initiating and/or implementing the plans of action they developed at the Conference. The rate of return was 40%.

Each returned questionnaire was matched with the Department of Outreach and Research's copy of the plan. Assisted by a staff member of the North Carolina Board of Science and Technology, the sets of questionnaires and action plans were reviewed. Close attention was given where the respondent indicated the implementation of the plan.

The following school systems and school showed evidence of implementing their plan:

Region 1 - Washington City

Region 2 - Greene County
Lenoir City

Region 3 - Gaston Junior High School
Roanoke Rapids

Region 4 - Robeson County

Region 5 - Madison-Mayodan
Stokes County

Region 6 - The entire region (will be discussed separately)

Region 7 - Burke County
Catawba County
Elkin City
Hickory City

Region 8 - Buncombe County
Madison County
Warren County

Respondents from Regions 1, 2, 3, 4, 5, 7 and 8 were written, indicating that they were identified as taking exemplary action in using the ideas generated at the Conference. Technical assistance and "seed money" grants of $100-$200 were offered to encourage and assist their efforts. To receive assistance, more specific information on what they were doing was requested. This could be done through a letter.

Approximately $1500 of the Lounsbery Foundation grant was set aside to provide "seed money" grants to selected school districts or regional groups. This funding would be used to facilitate their follow-up planning and to encourage future funding to implement partnership programs.

To date, two school systems have requested assistance:

1. Catawba County requested $200 to be able to offer five (5) high school teachers stipends this summer to attend a meeting with Appalachian State University and continue to work on the redesign of their Science Curriculum.

2. Stokes County requested $200 to defray some of the expenses for a planning meeting with representatives of the school system and local businesses and industries. They have also requested technical assistance on strategies for approaching local industrial sectors. Dr. H. Braughn Taylor, Development Officer, The North Carolina School of Science and Mathematics, was suggested as the individual to provide such assistance. They are expected to contact him later this month.

At the Conference representatives of school systems in Region 6 formulated a regional resolution to address their concerns in Science and Mathematics education. The Conference participants formed a Region 6 Science and Mathematics Consortium. The members include representatives of school systems central office administration, principals, teachers, universities and Discovery Place.

The Consortium will direct their attention to the concerns stated in their resolution. They are attempting to locate a representative from industry to serve as chairman of the Consortium. They have requested that the North Carolina School of Science and Mathematics (NCSSM) provide a representative to serve. Their first meeting is expected to occur in the summer. At that time, they will identify how NCSSM can assist.

Their first project will be to gather information on writing proposals to obtain funding for science and mathematics teacher in-service.

Summer Workshops

Secondary Laboratory Science

Approximately 70 secondary science teachers will be in residence July 5-15, 1983 for a science laboratory workshop. Instruction will be conducted by the NCSSM science faculty.

The workshop will cover the areas of laboratory safety, Biology/Life Science, Chemistry, Physics/Physical Science, and beginning and advanced programming

(BASICS). Also included will be sessions for participants to share classroom demonstrations, laboratory exercises and specific teaching methods. Microcomputer application will include not only programming instruction but also use of prepared software in classroom teaching, in the laboratory to collect and process data, and for record keeping and word processing.

Participants will receive 5.4 units towards certificate renewal or Gifted and Talented endorsement.

The Lowe's Companies initiated this spring the "Lowe's Science and Mathematics Teachers of Excellence Grants" as their program to establish partnerships with schools. The grants are for teachers of grades 9-12. The grants pay for the recipient's fees at the NCSSM summer workshop and a stipend. Over 150 teachers applied for the 25 grants. The 25 science teachers received grants of $500 each. These teachers were selected by a committee comprised of representatives of the State Department of Public Instruction, NCSSM and Lowe's Companies.

The actual cost of the workshop is $250. Non-recipients of the Lowe's grant automatically receive R. J. Reynolds scholarships of $75. The cost includes registration fees, instructional materials, and room and board.

Science Activities for 4th, 5th, and 6th Grade Teachers

Approximately 40 elementary teachers will be in residence July 18-29, 1983 for a workshop specifically designed for the development of hands-on laboratory activities. Instruction will be conducted by three (3) individuals outside of NCSSM who have worked extensively with elementary science. These instructors have an expertise in Life Sciences, Physical Sciences, or Earth and Space Sciences.

Activities for this workshop will be tied to specific units of the curriculum as outlined in both the state-adopted Curriculum Guide and the Behavioral Objectives and Performance Objectives for Elementary Science. Participants will use the hands-on approach to develop individually constructed science kits for use in their home school. The LOGO and BASIC microcomputer languages will be introduced as problem solving instructional tools in the teaching of elementary science and mathematics. Opportunities will be available in the afternoons and evenings for interested participants to pursue microcomputer applications for elementary grades.

One primary purpose of this workshop is to train elementary teacher leaders who will train others. We asked participants and their principals to sign a "Commitment to Share" form to indicate their willingness and commitment to sharing the summer's experience with teachers in their home schools.

Participants will receive six (6) units towards certificate renewal or Gifted and Talented Endorsement.

The actual cost of the workshop is $250. R. J. Reynolds scholarships of $75 are automatically provided for these participants. The cost includes registration fees, instructional materials, and room and board.

Microcomputer Workshops

The summer workshops on microcomputers and programming which were held the past two summers on a residential basis are being held this summer on a commuter basis in the eight educational regions. The dates of these workshops are July 11-22, 1983. Approximately 250 teachers will participate this summer.

The location of the sites are:

Region 1: a- Holmes High School (Edenton-Chowan) (approximately 18 participants; 2 instructors)

b- J. H. Rose High School (Greenville) (approximately 31 participants; 2 instructors)

Region 2: c- Jacksonville Senior High School (approximately 32 participants; 2 instructors)

Region 3: d- Ligon Gifted and Talented Middle School (Raleigh) (approximately 33 participants; 2 instructors)

Region 4: e- Reid Ross High School (Fayetteville) (approximately 24 participants; 2 instructors)

Region 5: f- Rockingham Community College (Wentworth) (approximately 8 participants; 2 instructors)

g- Winston-Salem Career Center (approximately 27 participants; 2 instructors)

Region 6: h- Charlotte-Mecklenburg Staff Development Center (approximately 43 participants; 2 instructors)

Region 7: i- Wilkes Community College (Wilkesboro) (approximately 15 participants; 2 instructors)

Region 8: j- Enka High School (Enka) (approximately 7 participants; 2 instructors)

k- Bowman Middle School (Bakersville) (approximately 8 participants; 2 instructors)

Participants will receive instruction in BASIC, observe applications of microcomputers to the mathematics and science curriculums, and sample microcomputer based software. No previous knowledge of programming or microcomputers is required.

Participants will receive approximately six (6) units towards certificate renewal or Gifted and Talented Endorsement.

Instruction will be conducted by exceptional teachers who completed the previous workshops. These instructors will receive daily assistance through teleconferencing and on-site visits.

This workshop was coordinated by Dr. Stephen Davis, NCSSM, and Mr. Jim Ebert, Durham Academy. The instructors met on campus to prepare for the workshop.

Rising 7th and 8th Grade Science Camp

During the past three years NCSSM has directed its efforts to high school students during the academic year and teachers in the summer. Many school systems have urged us to try to interest students in science and mathematics during the critical middle school/junior high school years. This summer we will respond to this request.

A pilot project for two, two-week science enrichment residential camps for 100 rising seventh and eighth grade students will be held. The two sessions will run concurrently with the summer workshops for teachers. The eighth grade camp will be July 5-15. The seventh grade camp will be July 18-29.

Twelve school systems will participate. The school systems were originally selected to participate in a similar project proposed to Westinghouse.

The school systems to participate are: Durham City Schools, Orange County Schools, Chatham County Schools, Wilson County Schools, Robeson County Schools, Fairmont City Schools, Red Springs City Schools, Lumberton City Schools, St. Paul City Schools, Stokes County Schools, Surry County Schools, and Yadkin County Schools.

The two-week summer program is designed so it does not duplicate the curriculum students will experience in their home schools in the year following their summer experience. The program is strongly laboratory oriented, emphasizing the life sciences for rising seventh graders, and earth and space sciences for rising eighth graders. Also included in the program are activities for improving problem-solving skills, communication skills, introduction to computer science, and field trips to science and technical installations in the Triangle area. Based on the success of this project, we anticipate a two-summer commitment to rising seventh graders. As rising eighth graders, participants will be invited to attend the eighth grade camp.

At the end of the camp parents and home school teachers will receive letters from the camp instructors outlining the activities in which the students participated, and suggested information and motivational techniques to sustain the students' interest in science during the academic year.

Superintendents, principals, teachers and parents are invited to visit NCSSM during the time their students are in resident.

In the school system selection process, we requested they give consideration to students who have potential for high achievement in science but who, because of lack of motivation, lack of economic and/or cultural opportunities, gender, race, plus rural or urban isolation, have not yet fully demonstrated their potential. Most importantly, we asked that they consider students who would not have other opportunities for similar experiences.

The local school system coordinator was offered a space in one of the teacher workshops at no cost. Two school systems have accepted this offer for the secondary workshop: Robeson County Schools and Lumberton City Schools.

The cost of $70, to cover some of the expenses of instructional materials, and room and board was charged. We did not want even this amount to hinder a student from being able to participate. We offered partial scholarships of $5 to $65 in $5 increments, simply upon the recommendation of the school system.

The instruction will be conducted by the NCSSM science faculty, one NCSSM English faculty member, and two NCSSM students. We are still in the process of planning the program.

A copy of the general information which was mailed to the superintendents to distribute to parents follows. (Appendix A)

Obtaining Computers

To meet the microcomputer needs for the summer workshop, nineteen (19) were borrowed from three school systmes. These school systems are: Burlington City Schools, Montgomery County Schools, and Lincoln County Schools.

Two options for payment were avaliable: (1) for every five (5) microcomputers we borrowed, we would provide two (2) slots to attend a teacher workshop at no cost, or (2) we would pay $10 per microcomputer per week. The following two school systems accepted option 1: Montgomery County Schools, 10 microcomupters, 2 teachers; Lincoln County Schools, 3 microcomputers, 1 teacher.

Other Summer Activities

The State Librarians will be in residence for a three day seminar August 3-5, 1983. The seminar will focus on the use of the microcomputer for librarians. They will use the computers that were borrowed from the school systems. The coordinator of the Librarians Seminar offered the same options for payment as was offered by NCSSM. Montgomery County Schools accepted option 1 for two teachers.

NCSSM Guidance Counselors will sponsor a two day seminar for school counselors. They will be in residence August 10 and 11, 1983. The participants will be able to choose from the following topics: Reorientation to the College Picture from Admissions to Persistence; A Minority Perspective: Becoming Computer Comfortable; Financial Aid: The Mystery De-Mystified; Student/Environment Match; Future Directions for the Public School Guidance Counselor; Traditionally Black Colleges; A Discriminating Look at Selective Colleges; The College Selection Process - What Should Students Know? What Do They Want To Know?; Scholarships: How Does One Locate Scholarship Funds And How Do Students Actively And Creatively Pursue These Awards?; Counseling Issues For The School Counselor; and Helping Students To Plan For Careers In Science And Technology. Sessions will be conducted by NCSSM counselors as well as individuals from across the state who have expertise in the topic. One unit of renewal credit will be offered.

The NCSSM Debate Team sponsor has coordinated a residential debate workshop for high school students in North Carolina. These students will be in residence July 24-29, 1983. The program will provide novice debaters with the basic skills necessary to research and present debate topics. The workshop features a staff of experienced debaters, lawyers, judges, and guest lecturers from across the state.

Ford Foundation Grant

North Carolina School of Science and Mathematics

NCSSM received a planning grant from the Ford Foundation. Since January 1983 a committee comprised of representatives of NCSSM, school systems (principals and teachers), The State Department of Public Instruction, universities and the Governor's Office have been meeting on the average of once every two weeks to plan a Science and Mathematics Teacher Resource Center.

It was decided by the Committee that since the present activities for Science and Mathematics in the State are directed towards teachers in grades 7-12, the Resource Center's target population will be teachers in grades K-6.

Mr. Gerard Piel, Publisher, SCIENTIFIC AMERICAN, joined the Committee in April. He has agreed to write the proposal to Ford to request the initial funding of the Resource Center.

The proposal should be completed by mid-July. Members of the NCSSM Board of Trustees will receive a copy.

Part of the grant is being used to support the rising 7th and 8th grade science camp through the purchasing of non-consumable instructional materials.

Bennett College, North Carolina A&T, Pembroke

In April it was brought to our attention that Bennett College, North Carolina A&T University and Pembroke State University have received a grant from the Ford Foundation. Their program is a six-week college campus resident program designed to help 10th, 11th and 12th grade North Carolina minority students make their mathematics functional, to provide instruction in Biology, Chemistry, and Physics from an interdisciplinary approach, and to demonstrate the role of the computer in preparation for careers in an information-based society.

One of their program objectives is to work with NCSSM in attempting to identify participants for their program. We have forwarded to them the names and addresses of our minority finalists and suggested the programs to them.

We will contact them in the fall to identify the NCSSM students who participated and follow those students' adjustment and academic progress during the year.

RESEARCH

Computerizing Data

To enable research to be conducted at NCSSM the past six months entailed the organization of data on our students into uniformed format which would allow ready access and analysis by the computer. The data (admissions and grades received to date) on the Classes of 1983 and 1984 are in place. The organization of the data on the Class of 1982 will be completed by the end of June 1983. (It is for this reason that the following information on NCSSM students does not include the first graduates.)

Demographic Data on Students

To obtain a preliminary description of the present student population, a questionnaire was given to them in February 1983 requesting the following information: race, sex, state(s)-attended junior and senior high school, and highest level of education of parents/guardians. Three hundred and seventy-six (376) questionnaires were returned.

Approximately 13% or 48 of the current students had some junior and/or senior high school outside of North Carolina. Approximately 15% or 23 of the 150 senior class had some junior and/or senior high school out-of-state. Approximately 11% or 25 out of 226 of the juniors had some junior and/or senior high school outside of North Carolina.

Detailed tables on the data are on file. Copies can be provided upon request.

Admissions Data on Students

Preliminary analysis on the use of the quantitative admissions scales for selection was conducted and presented to the Selection Committee.

Two questions were asked:

Question I: What admission scales would most likely predict a semifinalist being chosen a finalist for the past two years?

Tables 11 through 13 present the results of the Step-wise Multiple Regression Analysis used on the qualitative admissions scales. The scales are listed according to weight in the prediction model.

An asterik (*) next to a correlation coefficient indicated that there is some independent relationship, although not very strong, between the scale and a semifinalist being selected as a finalist.

A review of the multiple correlation coefficients for each model indicates a highly close relationship between a semifinalist being selected as a finalist and the model scales being used together.

Table II

Classes Combined

Scales	r
GPA 10	.07
SAT-Verbal	.16
SAT-Math	.26*
Ravens	.07
Interview	.20*

Multiple Correlation Coefficient = .77

Table 12

Class of 1983

Scales	r
English Score	.16
SAT-Verbal	.27*
SAT-Math	.31*
Interview	.17
Ravens	.13
Essay (Imagination)	.13
Capacity for Learning (Biolographical Inventory)	.10
Test of Standard Written English	.10

Multiple Correlation Coefficient = .85

Table 13

Class of 1984

Scales	r
SAT-Verbal	.10
SAT-Math	.30*
Interview	.22*

Multiple Correlation Coefficient = .77

Although the prediction models have a high correlation coefficient, there is a caution as to the extent of interpreting the data at this time. These prediction models do not take into account qualitative data that are collected on nominees.

An attempt was made to obtain prediction models on minority and non-minority selection. There were not enough minority cases to make that analysis possible at this time.

Question II: Is the student's academic performance at NCSSM related to the prediction models?

The three prediction models were compared to junior year GPA for seniors and first semester GPA for juniors. The models were also independently compared to the Science and Mathematics grades for the same period of time.

The preliminary analysis of this data indicated there was an extremely weak or no relation between students' junior year grades and the admissions scales in the models.

It is believed that the weak correlations may be due to the varied background of NCSSM students; therefore, qualitative characteristics may need to be considered. Presently, an instrument entitled "Students in Context" has been developed to assess qualitative characteristics which may influence a student's performance level (social and academic) at NCSSM. The instrument was developed with the assistance of Dr. Cliff Wing, Duke University. It will be pilot tested this spring.

The scale solicits students' views and experiences before and while attending NCSSM. The results of this pilot test and the possible significance of the instrument will be presented in the paper submitted by Dr. Cliff Wing for the Research Advisory Assembly.

Research Advisory Assembly

In an attempt to develop a sound research program on NCSSM, a Research Advisory Assembly will be held on September 15, 16 and 17, 1983. Drs. James Gallagher, Robert Sawyer, and Braughn Taylor assisted with the planning of the forum.

In February 1983, invitations were mailed to researchers. Enclosed with the invitations was a synopsis about the school. The researchers were selected because of their reputation in various aspects of social science research (e.g., gifted and talented, institutional research, psychology, sociology, program evaluation.)

The Assembly will achieve two goals: (1) assist the NCSSM in identifying the critical research questions that need to be addressed, and the appropriate methodology (Sept. 15-16) and (2) provide information to NCSSM students on the purpose and use of social science research and the specific need for research on an institution such as NCSSM (Sept. 17).

The researchers were surveyed as to areas/topics of interest for research/evaluation. Based on the results of the survey, they were informed of the topic and asked to submit by July 15, 1983 a 5-10 page paper on their ideas for research and research designs. At least three weeks before the Assembly, the papers will be compiled and distributed to them.

The following pages contain the names, institutions and topics of the researchers.

RESEARCH ADVISORY ASSEMBLY

September 15-17, 1983

Dr. Charles Achilles, University of Tennessee at Knoxville
TOPIC: School/Classroom Climate (administrative style; evaluation procedures - students and staff)

Dr. James Altschuld, The Ohio State University
TOPIC: Longitudinal Study

Dr. Frank Brown, SUNY at Buffalo
TOPIC: Admissions and Instructional Methods

Dr. Michael Bunch, Measurements Incorporated
TOPIC: Admissions

Dr. David Carter, University of Connecticut
TOPIC: Professional Development

Dr. James Gallagher, University of North Carolina at Chapel Hill
TOPIC: Nature and Nuturing of Talent

Dr. Jack Getzels, University of Chicago
TOPIC: Problem Finding and Problem Solving

Dr. John Harris, Indiana University
TOPIC: (To be decided)

Dr. Andrew Hayes, University of North Carolina at Wilmington
TOPIC: Cognitive Processes of Students

Dr. Barry Hounshell, University of North Carolina at Chapel Hill
TOPIC: Curriculum

Dr. Gay Su Pinnell, The Ohio State University
TOPIC: Interface Between Curriculum and Residential Life

Dr. Henry Pollak, Bell Laboratories
TOPIC: (To be decided)

Dr. William Purkey, University of North Carolina at Greensboro
TOPIC: School Climate (interpersonal relationships)

Dr. Robert Sawyer, Duke University
TOPIC: Admissions

Dr. Suzanne Triplett, Louisiana Department of Education
TOPIC: Minority and Female Identification, Participation and Success

Dr. Iris Weiss, Research Triangle Institute
TOPIC: Longitudinal Study

Dr. Kinnard White, University of North Carolina at Chapel Hill
TOPIC: Teaching Practices that Relate to Student Achievement

Dr. Clifford Wing, Duke University
TOPIC: Assessment of Performance in Context

A final report on the outcome of the Assembly will contain descriptions of the research topics and designs that are generated. A draft of the report will be sent to each participant to review. This report will be used as the proposal to request funding for research and evaluation at NCSSM.

The first research project is expected to begin January 1984.

Faculty Initiated Research Projects

Faculty is beginning to initiate research activities which would assist in maximizing their instructional techniques and strategies. Technical and/or consultant assistance on these projects are provided by the Research Department.

Project I

As an extension of the Research Advisory Assembly, the social science faculty is interested in developing a module which incorporates the practical use of research skills as part of a student's social science program. One of the invited researchers will work with them on developing the module.

Project II

Recognizing the gap between some students' mathematical skills and their writing and verbal analytical skills, an English instructor wants to design a program for juniors which would attempt to close the gap. Approximately 40 incoming juniors will be identified. Using an experimental design the 40 students will be randomly placed in the control or experimental class. A pre and post test will be given to both classes. At this time the test has not been determined. Based on the results of the pre-test, the instructor will identify the deficient areas. The experimental program will be designed to give heavy emphasis to the deficient areas and will be implemented the second quarter.

The instructor is presently reviewing possible tests. The criteria for selecting students is still being determined. A review is being conducted on SAT-Math and SAT-Verbal admission scores as well as essays that were written for admission.

Cynthia L. Jackson
Head of Outreach and Research

NORTH CAROLINA SCHOOL OF SCIENCE AND MATHEMATICS

Rising 7th and 8th Graders Summer Residential Science Camp

General Program Information

The North Carolina School of Science and Mathematics is pleased to announce that it is sponsoring a Residential Science Summer Camp for rising 7th and 8th graders in twelve school systems in North Carolina.

Program Goals

1. Stimulate and motivate students interest in science.
2. Improve problem-solving and analytical skills.
3. Improve knowledge and understanding of the scientific process.
4. Improve precision in oral and written communication skills.

Program

Two, two-week sessions will be held for 100 students. Fifty rising 8th graders will participate the week of July 5-15, 1983. Fifty rising 7th graders will participate the week of July 18-29, 1983.

A minimal fee of $70 will be charged. This fee will cover the cost of room and board. If a student is unable to pay the total cost, a partial scholarship ($5 to $65 in $5 increments) will be awarded.

Parents and home teachers will receive letters from the North Carolina School of Science and Mathematics' faculty outlining the activities in which the student participated and suggested information and motivational techniques to sustain the student's interest in science. Parents will be invited to an open house on the last Friday of the two-week session in which their student has participated. This will provide parents the opportunity to see examples of the type of work in which the students were involved and to meet with the faculty members who worked with their student during the summer.

As an initiative to sustain the student's interest in science during the academic year, each student will receive a free subscription to a science-oriented magazine which is appropriate for their grade level.

Curriculum

The two-week session is designed so as not to duplicate the student's school curriculum.

The curriculum will be strongly laboratory oriented. Life sciences will be emphasized for rising 7th graders, and earth and space sciences for rising 8th graders.

The curriculum will provide:

1. a core academic experience;
2. problem solving and communication skills;
3. introduction to computer science; and
4. field trips to scientific and technical installations in the Triangle area.

Life on Campus

Students will live in the dormitory facilities that house NCSSM students during the academic year. Separate dormitory facilities are provided for males and females. Students will be expected to provide their own linen while in residence. The students will be supervised in the dormitory by members of the NCSSM Residential Advisor staff. These are the same professional adults who live in the dormitory during the year with NCSSM students. Meals will be provided in the School dining room.

If it is desired, students can remain on campus during the weekend between their two-week session. During the weekend social activities and trips to sites in the Triangle area will be arranged.

The North Carolina School of Science and Mathematics is located on the site of the old Watts Hospital and Nursing School. The School is in walking distance to a shopping center, banks, drug stores and churches.

If you have any questions, please call Dr. Cynthia L. Jackson, Head of Outreach and Research, North Carolina School of Science and Mathematics, (919) 683-6566 or write Dr. Jackson, North Carolina School of Science and Mathematics, Post Office Box 2418, Durham, North Carolina 27705.

A COMMUNITY OF SCHOLARS AND ACHIEVERS

The planners of the North Carolina School of Science and Mathematics had a vision--a "community of scholars and achievers," bound together in the quest of knowledge and the sharing of ideas, as the only sound preparation for the future leadership of humankind. An inquisitive mind was to be treasured and nurtured. The accumulation of "known facts" was to be deemphasized, left for other, more structured institutions to attend to, along with the usual trappings of vocational education and watered-down electives.

As we continue to develop the NCSSM program, we sometimes lose sight of the idea of the early visionaries. They had idealism to guide their dream; we are faced with the reality of 400 gifted teenagers and their emotional and intellectual needs. Because of the pressure of time, among other things, our response to the needs of our charges has been relatively standard--based on currently accepted wisdom and our own experiences.

We continue to operate within the structure of today's popular trends in education--with little regard for the alarming findings of top research in the field. NCSSM was created to help provide direction toward the solution of some of education's problems. The time has come to take our responsibility as a nationally recognized model seriously. We are still pioneers--we are an important part of a great experiment. Others are looking to us for answers that we do not yet have.

This responsibility is the primary basis for this current retrospection and for my opposition to "Introduction to Community Living" and similar courses. When ICL is required for juniors for one semester, something else must be dropped. Any essential material covered in ICL could be more appropriately taught in the context of science, mathematics, history, philosophy, sociology, or other courses.

The imposition of courses like ICL into what is supposed to be a rigorous and demanding curriculum is symptomatic of the watering-down of academics throughout education. This problem has been addressed through research by the College Board and the National Commission on Excellence, who support the above conclusion. Their research, as summarized in the report of Florida's Commission on Secondary Schools, concludes:

> Research by the College Board determined that a major cause of the twenty-year decline in learning at the high school level is "the adding of many elective courses and a reduction of the number of courses that all students are required to take."
>
> After studying high school transcripts covering the period 1964-1980, the National Commission on Excellence also found a major proliferation of electives at the expense of academic subjects. The National Commission reported that there has been a "systematic devaluation" of academic high school courses and students have been taking, instead, increased numbers in health, driver education, general shop, home economics, and a whole range of personal service and development courses.
>
> The National Commission further disclosed that, between late 1960 and late 1970, nearly one-third of the nation's high school students moved from an academic program to

> a general curriculum. In brief, the high school curricula are adrift on a do-your-own-thing binge.

The Florida Commission on Secondary Schools was established in October 1981 by Governor Robert Graham and charged with developing specific strategies and plans to improve the quality of education in Florida. The commission's report of January 1983 calls NCSSM "one of the remarkable successes in American education. It has become a model for the nation." After receiving testimony from Dr. Cecily Selby and after a visit to NCSSM by a commission member/legislator, the commission recommended that Florida establish three such residential science/math high schools.

The commission made other recommendations "designed to make Florida the leading state in the nation in what it expects from its high school students." Its 124-page report (excluding exhibits and appendices) calls for four years of science and mathematics in high school for admission to state colleges and universities. They recommended that, due to the "constraints of vocational education...(only) three years of science, three years of mathematics, and three years of history and the social sciences" be required for high school graduation. The commission pointed out, "Ideally, every high school student should study mathematics and science in every year of high school."

NCSSM was a great inspiration for the Florida commission, as it has been and should continue to be for other states striving to improve their educational systems. If we are to continue to be responsible as a beacon for secondary education in the nation and the world, we must strive to remain on the cutting edge of innovation. We can do this as a community of scholars and achievers.

In the light of the above findings and opinions, I make the following recommendations:

1. More teachers in our community. One of the primary aspects of the NCSSM program that makes it both unique and effective is its residential nature. Under present policies and arrangements, even with faculty-directed evening tutorials, the primary supervision for the students after class hours is provided by Resident Advisors (RAs). I recommend for debate the proposition that in the future we establish 60% of the RA positions as residential teaching positions, calling for the same high standards of quality in specialized areas of a demanding curriculum. The Resident Instructors (RIs) would teach only a half load and live on campus during the regular nine-month term. The Resident Instructors would be full voting members of the faculty.

An example of how effective this arrangement could be is Tom Bodie and his work with the debate team. The success the team has had in competition attests to the effectiveness of having a residential instructor to guide the students, one who is always available for help, advice, and motivation. Tom Bodie might well be considered for one of the first RI positions: a member of the humanities faculty with regular assignments and responsibilities.

Having Cliff Foster (a visiting Babcock instructor) live on campus this year and J.W. Troxler (a regular member of our English faculty) serve both as an instructor and resident advisor while living on campus has opened our eyes and minds to the inherent possibilities and benefits. Ideas from creative teachers and imaginative students need invigorating discussion and experimentation.

As things are now, there is little interaction between faculty and RAs, and this situation is not likely to change. They each have their jobs to do, come from different backgrounds, and have different goals. But this is a living/learning community in which this kind of interaction should be taking place. Historically, residential "Dons" at Oxford, Cambridge, Harvard, Yale, Exeter and Andover have shared with their students the motivation and commitment to the high expectations of the mandates of their schools--both moral and academic.

Just as Thomas Jefferson and the University of Virginia served as models for our architecture, their self-contained, living-learning houses for students and faculty members should also serve us. The sharing of meals and free time represents the very essence of the concept. The fact that our RA's, for whatever reason, do not regularly eat with our students is symptomatic of an underlying problem.

Current research by John I. Goodlad, dean of the Graduate School of Education at the University of California at Los Angeles, as quoted by the New York Times on April 5, 1983, takes this concept a step further:

> [Goodlad] concluded from an in-depth seven-year study of more than 1,000 classrooms in elementary, junior high and high schools that present arrangements fail to make use of young people's energies.
>
> By turning education into a spectator sport, with teachers doing most of the talking, the schools leave the students' minds "free for unrelated activities." In some of the worst schools, Goodlad found, "nonacademic elements had virtually taken over," and the intellectual and academic functions "were in serious jeopardy."
>
> The centerpiece of his reform proposal is the reorganization of schools into four-year units, in which teams of teachers assume responsibility for the total education of the students in each unit.
>
> "It will take enormous expenditure of energy to make our schools vital places of learning," he warns.
>
> As long as teachers remain relatively isolated from one another and largely excluded from planning the children's education, little fundamental improvement is possible. Occasionally, outside consultants try, largely without success, to bring about change, or teachers are sent individually to workshops away from their schools. When they return, the old ways usually overwhelm them.
>
> "...there is much more to schools than preparation for achievement tests..."
>
> ...teachers must come out of the isolation of their classrooms and become part of a peer group; teaching must be "taken out of its cloak of privacy" and become the business of the entire school...
>
> The creation of the position of head teacher [for each group of no more than 160 students] would attack the present low ceiling on teaching as a career for able and ambitious young people. As Mr. Goodlad sees it, head teachers would not be appointed on the

> basis of seniority but would bring to their important role special skills, knowledge, advanced studies and internship. (Two regular teachers, a paraprofessional aide and an intern would work with the head teacher.)
>
> The Goodlad reforms would also assign more important functions to students, especially the task and opportunity for able students to teach younger ones. To cure the present student passivity, Mr. Goodlad hopes to "promote a classroom ethos in which students are responsible not only for their own learning but also that of their classmates.
>
> Mr. Goodlad wants the changes to grow out of the schools themselves. He believes that teachers who ultimately hold the key can be motivated to do the job.

The proposal to create Resident Instructor positions would, if adopted, increase the size of the faculty in a cost-effective manner. Class sizes could be reduced and more individualized study and interaction provided. Class sizes could be further reduced, as well as teacher work loads of the full-time faculty. The average salary of Resident Advisors is currently around $11,000 for ten month's work. Additionally, they are provided with furnished apartments and utilities. This kind of compensation, plus free meals and a teacher's supplement, along with the opportunity to teach at a school that is receiving national attention, should be sufficiently lucrative to attract many excellent applicants for the new Residential Instructor positions. No current RA would be dismissed; the teaching positions would be created through attrition.

For those remaining RA positions (40%), I suggest again that we need some "mother and father" figures on campus. The average age of our RAs is 26. We need a few who are older and have both the experience of age and raising teenagers.

2. The Character of a School. My attention was recently called to the attached opinion of Gary Pavela of the University of Maryland, dated January 26, 1983. Pavela claims that "too many educators lack the courage to articulate a code of ethical conduct and have been captivated by therapeutic, legalistic or managerial responses to student behavior." He points out "considerable danger" from the category of campus officials known as "student-personnel professionals." He says, "These 'managers' of student 'personnel' often receive similar training, generally in counseling or education administration, and are in the process of setting uniform professional standards for themselves.... As time goes by, such a profession will almost certainly be composed largely of dull, cautions, shrewd, and probably successful bureaucratic functionaries, who are unwilling to challenge students on the ethical dimensions of their behavior."

James Traub, in the May 1983 issue of Harper's magazine, offers "The Key to a Good Public School," in a revealing article entitled "Principals in Action." He says:

> There is very little correlation between academic achievement and such presumably critical factors as the student-teacher ratio, the size of the student body, or the quality of the physical plant....

> Michael Rutter, an English scholar who spent several years studying a dozen inner-city public high schools in London, found that "the pre-existing culture of the school as a whole was the predominant influence on the behavior (academic as well as social) of each new intake of the children."

In New York City public high schools, where the drop-out rate is roughly 50% and assaults, weapon offenses, "mini-riots," and robberies are commonplace, one school and one principal with virtually all of its 3,600 students coming from poor minority families in West Harlem stands out for its modest successes in the face of apparently insuperable obstacles. Traub says, "During an era in which public schools have become ever more bureaucratic and legalistic, [Murray] Cohn has for twenty-three years run [Louis D.] Brandeis High School in cleanliness and order, [students have few free moments], homework is emphasized [especially writing], and achievement is publicly praised."

Traub goes on to define what Murray Cohn does to achieve this success in his high school:

> What Cohn and other administrators like him impart to their schools is nothing quantifiable; it is an ethos. This apparently humble contribution has been completely neglected for the past fifteen or twenty years by educational activists, who have called for more money, more power, more community control, more racial balance. Yet while educational expenditures nationwide rose from $816 per pupil in 1970 to $2,269 in 1979, educational results, measured in standardized tests, plummeted.
>
> Perhaps because of this record of failure, educational theorists have begun to recognize that schools might best be able to help themselves, and that a school's character, rather than anything quantifiable or purchasable, might determine its success or failure.

Ronald Edmunds, Traub reports, after 15 years of experience and study, has established five characteristics of an "effective school;"

> First and foremost is a strong principal who spends most of his time out of his office, observing classes and adopting a "collegial" manner in settling instructional problems. Second is a clear sense of institutional purpose. Third is an orderly climate--broken windows must be replaced rapidly, and everyone must feel responsibility for the school. Fourth is the high expectation of teachers for students. And fifth is the willingness to measure students' performance objectively, with standardized tests.

Murray Cohn's discipline in his high school, Traub states, is:

> ...as mild, and above all as personal, as possible. Serious offenses, such as carrying a weapon, call for automatic suspension, and possible criminal proceedings. But Brandeis has had no such cases this year.
>
> Cohn leaves punishment to the half-dozen teachers who function part time as deans.

Traub also reports:

> True authority in the schools rests neither on legalism nor tyranny, but on the acceptance by students of standards they recognize as being in their own interests.
>
> ...But order is only a means to an educational end. Though Brandeis [high school] seems to be a triumph of common sense and decency over spurious doctrine and plain unrealism, many of the students seem almost impervious to instruction. ..
>
> Cohn's views of teaching are an extension of his views of student behavior--he believes in standards and in clear explanation.
>
> Intellectual excitement, or even simple curiosity, often requires a little havoc. Cohn's insistence on order could be a prescription for lethargy. Yet he is no instructional martinet; he praises a healthy hubbub and condemns silence as the worst possible classroom atmosphere.

3. Promoting interest in scholarship and motivation to achieve. Current research tells us that we have a long way to go when it comes to teaching science and mathematics. The April 1983 APA Monitor summarized the 1982 National Institute of Education Conference, which reviewed research on teaching spanning eight years. One important point was brought out by Robert Yager, professor at the Science Education Center at the University of Iowa:

> Research indicates that the longer children are in science classes, the less they like them. Yager, a former president of the National Association of Research in Science and Teaching, also cited the findings of Project Synthesis. That was a major, NSF-funded study which tried to define both the ideal state for science education and its real state. Among its conclusions: 90 percent of science teachers were spending 95 percent of their time going page by page through textbooks. And of four ideal goals the project identified--satisfying the personal needs of the students, dealing with societal issues, dealing with career awareness, and preparing for college science courses--most teachers were spending 98 percent of their efforts in meeting the last goal.

The recently adopted goals of the State of North Carolina to improve science and mathematics education from K through 12th grades throughout the state are admirable, but not likely to be successful if youngsters are "turned off" from science and mathematics in the process. The solution is easy in theory, and difficult in practice. Quality of exposure from the first--not quantative requirements--is the answer. From the very earliest age youngsters must be turned on to the wonder, awe and joy of science and mathematics in much the same way Einstein was at the age of three, when in a sick-bed he discovered the fascination of unseen forces operating in a magnetic compass. The same was true for Einstein at the knee of his Uncle Jakob. Challenges to higher intellectual processes must always be present. "Teaching" and "tinkering" in informal as well as formal ways should be in the inventive American tradition. Somewhere along the line something has gone wrong, when a nation is asking whether money alone is the answer for an education that for millions of people is simply not worth having. "Excellence" in education needs to be re-examined and re-defined.

Einstein felt so strongly about the restrictions of the German gymnasium that he dropped out of school at 15 and eventually changed citizenship to attend Swiss schools. Even there, he resented the technical requirements of school, saying:

> One had to cram all this stuff into one's mind for examinations, whether one liked it or not. This coercion had such a deterring effect on me that, after I passed the final examination [after four years at a Swiss poly], I found the consideration of any scientific problems distasteful to me for an entire year.

We at NCSSM may never be fortunate enough to encounter students as brilliant and as motivated as Einstein, who appears to have learned primarily through self-study and from his peers, but we must nevertheless be sure that we do not hinder the progress of those who come to us. They may not be highly enough motivated to overcome our mistakes.

My earlier essays regarding David McClelland's work on developing the need for achievement are important enough to call to mind here, but will not be repeated.

The early visionaries, including John Ehle, Eli Evans, Governor Hunt, Marcus Hobbs, Bill Anlyan, Dean Colvard, Sarah Hamilton, and Quentin Lindsey, saw a school with an atmosphere that would promote interest and motivation to learn that would go far beyond highly structured, precise, advanced placement courses. Julia Robinson, professor of mathematics at the University of California at Berkeley, had this to say in those early days in a letter to Governor Hunt which he passed on to the planning committee:

> I am very enthusiastic about your proposal for a high school of science and mathematics for a number of reasons. I would like to mention just one: It would provide an opportunity for students excited about mathematics or some other particular science to find others who share their enthusiasm. (About 1 in 10,000 students is seriously interested in mathematics. Hence, the chance of there being two such students in the same high school is small and as a result they grow up feeling very isolated.) There they would see themselves as scientists, take pride in history and traditions of science, and experience the joy of joining with other young people in the search for truth and beauty. It would be a school with a magnificent "spirit."

4. Greater contact with colleges and universities. It would be ludicrous for us to assume that we know more about teaching science and mathematics than anyone else. Within the institutions of higher education in this and other states should lie the cutting edge of knowledge about teaching and learning these disciplines, as well as the humanities. We have unnecessarily antagonized them somewhat; we must work to reconcile with them and work ever more closely with them for the benefit of all. Eventually they will lead the longitudinal evaluative studies of us and our policies.

5. Visiting scholars. Recently, we had a visit from Dr. Angus McBryde, a retired doctor who lives in Durham. He was so enthused by the school and the students here that he offered to come back for talks and work with individual students of small groups. Trustee William Anlyan and others have suggested before that we invite retired scholars and Nobel laureates to visit or even live on our campus. The opportunity for our bright students to rub elbows and minds on a sustained basis with such leaders in science and mathematics who have already achieved in their lives could be the best possible motivation. Trustee (and Nobel laureate) Wassily Leontief and his wife, a very fine poet, have yet to spend unhurried time on our campus exclusively with our students. Trustee and chief IBM scientist Lewis Branscomb has made an excellent commencement speaker for us, but has not yet spent a day with students. Their roles as trustees are extremely important for reasons of policy and direction; they are also needed on campus for spirit and ethos. Having Trustee Ron McNair, a black astronaut, on campus meeting informally with students and faculty is as important as a role model for white and black students and as a maturing and learning force as are his many contributions in setting polic in the board room. Trustee Henry Pollack, a Bell Laboratories mathematician, is another example illustrating the importance of his contacts with students, faculty, and staff as well as trustees.

6. The future. As the North Carolina School of Science and Mathematics increasingly is seen as a model for other states to copy o adapt, and as plans for making it the core of a National Demonstration Center are developed, the timing for re-evaluation and re-examination of our mission and its execution becomes imperative.

NCSSM's initial success should not teach others, at a time when the need for change is urgent, what historian Leon Botstein describes as the "pernicious lesson" that the public will accept promotion and publicity (or as Claude Sitton says, "glitz and glitter") as surrogates for vision, originality and imagination. Our mission, our goal, our quest is for true excellence in education. Other states can learn from our mistakes as well as our successes, as should we.

> Have confidence in the future. That may not seem easy, but it is believing unbelievers who advance science, technology, and economic health. Their belief in a better way, their unbelief in the status quo, reflect the kind of confidence and personal commitment that led us from centralized computing to time-sharing, to mini- and micro-computing. Nobody plans such advances, but they happen, because we make room for them to happen.
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> Dr. E. E. David, Jr.
> President, Exxon Research and Engineering Co.

Note: Underlining for emphasis is the author's.

F. Borden Mace
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4/18/1983

INDIVIDUAL CURIOSITY AND AMERICA'S COMPETITIVE CHALLENGE

The Business and Higher Education Forum (May 15, 1983) warns that "as a nation we must develop a consensus that industrial competitiveness is crucial to our social and economic well-being." This warning, as it should, is being taken seriously. Obviously education and appropriate training are important for industrial and economic growth even for national security. However, education in general must be based upon even broader and more fundamental goals including among others: freedom, justice, peace, goodwill, and the pursuit of happiness. Instead of being frightened by gains in scientific research and productivity in foreign countries, we "ought to welcome the competition, for as long as we see to our own house we will gain greatly from the scientific advances of other nations." Frank Press, President, National Academy of Sciences, contributes the editorial in Science magazine, May 6, 1983. Dr. Press, a founding trustee of NCSSM and one of its first supporters and advisors, comes to grips with the essence of the issue:

> ".....the scientific endeavor (education) should transcend the momentary frictions of such competition. It is -- or should be -- a global binding agent, uniting all cultures in the common quest to understand nature and to improve the human condition."

Ralph E. Gomary, Vice President and Director of Research, IBM Corporation, in the same issue of Science clearly defines science and technology and how they interact, how they affect each other, and are affected by each other, in more than one way. In a brilliant article (based on a 1981 lecture) on the evolutionary character and complexity of technological development upon which much of our individual and national welfare depends, he identifies the same motivation and powerful force identified by Edward E. David, Jr., (another NCSSM advisor and early supporter) in his Venable Lecture at UNC at Chapel Hill this year namely, "individual curiosity." Dr. Gomary develops his thesis very succinctly:

> "Science can be thought of as a large pool of knowledge, fed by the steady flow from the tap of basic research. Every now and then the water is dipped out and put to use, but one never knows which part of the water will be needed. This confuses the funding situation for basic science, because usually no specific piece of scientific work can be justified in advance; one cannot know which is going to be decisive. Yet history shows that keeping water flowing into the pool is a very worthwhile enterprise.
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> Scientific research, which feeds this pool, has its own culture and its own imperatives, which are very different from those of technology. It is motivated by the desire to satisfy curiosity, as opposed to the imperative of technology to get out a working product."

The desire to satisfy curiosity is innate, inborn. Formal and highly structured education too often tends to stultify, if not kill, this most fundamental human characteristic and man's most distinguishing trait. Uninterrupted lectures, like textbooks and machine-graded multiple choice and true/false tests, imply at best that all answers are fixed, all knowledge frozen. This is not the way for students to unload naive theories and faulty concepts. It does not encourage debate and inquiry; it does not lead to higher levels of thinking, innovation and the extention of knowledge. The unanswered questions, the mysteries of life fascinate and stimulate the Lewis Thomases of the world. Rockefeller University, at the post-doctoral level in medicine, practices this philosophy and in many ways, epitomizes scientific education at its best. Dr. David also identifies in America's hundreds of thousands of small enterprises, the individual curiosity of entrepreneurs as the source of a bright economic outlook for the future. Wondering and speculating about running out of whale oil, for instance, provided motivation for the development of the petroleum industry.

If individual curiosity is responsible for self-education, scientific research, technological development and possibly global peace, we need to re-examine our entire educational and information processing systems. Science in contrast to technology, is university-oriented. Only Bell Laboratories and one other U.S. corporation conduct basic research, the others conduct applied research. The principal citizens of science are Ph.D.'s, not engineers. They are not industry-oriented but are definitely university-oriented where freedom to explore, to experiment, to satisfy individual curiosity is sacrosanct, or should be. Any "school of education," formal or informal, pre-school or post doctoral, which does not help satisfy curiosity or encourage imagination and creativity should be at least suspect if not outright dangerous to our survival. Education should be much more than training students to absorb knowledge; they should be encouraged and trained to expand on it. The avid thirst for further inquiry must never be quenched.

Equally fundamental, particularly with gifted and talented individuals, however, I believe, applicable to some degree to all students, the emphasis in education should be on learning how to learn--how to be successful at lifelong learning. Thus, the making of resources, material and human, available in both structured and unstructured formats in both systematic and unsystematic ways is called for. Self-directed education as well as self-confidence, self-discipline, and self-responsibility should become part and parcel of avid learners as early as possible. Good teachers know how students learn; they know this instinctively and know when to get out of the way and merely be a cheerleader from the sidelines when active learning is taking place. Education everywhere remains a function of human inquiry and communication. The "schools" of the future will require more of the really remarkable "master" teachers who will know from creative experiences and knowledge how best to meet the individual needs, abilities and interests of their co-learners. They will encourage questions, not supply answers; they will allow time and place for observation, for tinkering and experimenting. They know how to lead students to discovery, to analysis, to synthesis, to see relatedness, to make connections and to avoid the tyranny of disciplines when necessary. They will also need to be paid much, much more for "teaching" and not be forced into bureaucratic and administrative positions for financial survival.

Jean Piaget, the great developmental psychologist, educational theorist, cognitive learning expert, and experimentor par excellence, in his famous book, To Understand Is To Invent, calls for the basic orientation in science to be interdisciplinary. The pluralistic route toward "science teaching" is necessary based on the way the individual student's mind works. Piaget reported that there were very few "bad" science students. Much depended on how the subject was taught. Thus, generalized curricula applicable to a whole classroom would be self-defeating. In other words, Piaget believed that aptitude was purely situational.

What is needed, he said, are teachers "who know their subject but who approach it from a constantly interdisciplinary point of view--that is, knowing how to give general significance to the structures they use and to reintegrate them into the overall systems embracing the other disciplines. In other words, instructors should be sufficiently penetrated with the spirit of epistemology to be able to make their students constantly aware of the relationships between their special provinces and the sciences as a whole. Such men are rare today." Once outstanding teachers are identified and selected, we must give them the time and support needed to achieve the excellence for which they joined the community of scholars.

The College Board correctly calls attention to revolution in communications and information technology which is making the computer a basic tool for acquiring knowledge, organizing systems, and solving problems. As such, it is having a profound influence on learning and on the world of work. In describing "what students actually need to learn before college," it includes among the basic skills the use of the computer, an understanding of simulation techniques used to model experimental situations, knowledge of elementary concepts of probability needed in the study and understanding of statistics, knowledge of various types of functions and the ability to graph such functions and to use them in the solution of problems.

Model schools, such as NCSSM, should be "Communities of Scholars" with the highest expectations of students, faculty, and staff. Direct contact between top-level scientists, artists, philosophers and the school must be increased. We shall provide the environment including the tangible incentives of working conditions, pay, and sabbaticals, as well as the intangible intellectual and cultural challenges and rewards that will attract and retain excellent teachers including women and minorities. A clear sense of institutional purpose should permeate the personal relationships wherein creative thinking and learning, ideas, vitality, enthusiasm, thirst for knowledge, passion for truth and the pursuit of beauty are commonplace. Challenges to higher intellectual processes must always be present and welcomed.

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